



**PAPUA NEW GUINEA
COUNTRY ASSESSMENT**

May 5-21, 1991

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MOTHERCARE COUNTRY ASSESSMENT

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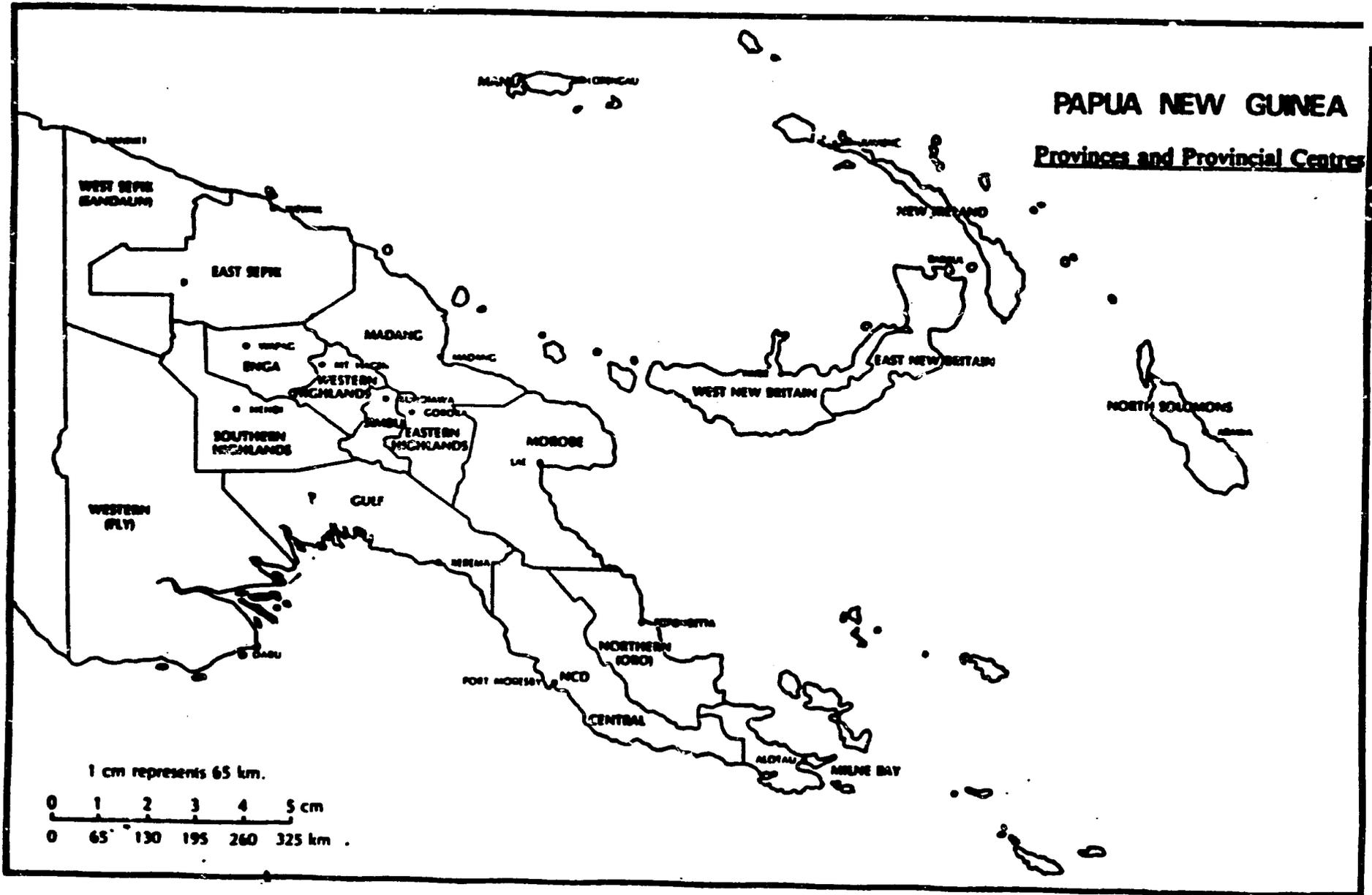
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Map of Papua New Guinea, showing Provinces and Provincial Capitals



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We are especially indebted to the many authors, researchers and health providers who have written about maternal and neonatal health in PNG. The reports and publications reviewed for this assessment are rich with information and insights and we encourage interested readers to explore them further. For this purpose, we have included a detailed bibliography as Appendix 1.

The contents of this report are the sole responsibility of its authors. As in all reports of this type, we have drawn from the available literature and from interviews with individuals and organizational representatives, and we welcome comments, criticism and corrections if we have inadvertently misstated, misinterpreted or missed any important information.

ACRONYMS

| | | |
|-------|---|---|
| AID | - | Agency for International Development of the U.S. Government (used to refer to AID Washington bureaus, offices and projects) |
| AIDS | - | Acquired Immune Deficiency Syndrome |
| APO | - | Aidpost Orderly |
| CBD | - | Community-based distribution |
| CHW | - | Community Health Worker |
| CSSP | - | Child Survival Support Project |
| ESCOW | - | East Sepik Council of Women |
| HEO | - | Health Extension Officer |
| IMR | - | Papua New Guinea Institute of Medical Research |
| LBW | - | Low birth weight |
| MCH | - | Maternal and child health |
| MMR | - | Maternal mortality ratio |
| NCW | - | National Council of Women |
| NGO | - | Non-governmental organizations |
| PNG | - | Papua New Guinea |
| RPR | - | Rapid plasma reagent card (syphilis test) |
| SEATS | - | Family Planning Service Expansion and Technical Support Project (AID) |
| STD | - | Sexually-transmitted disease |
| TBA | - | Traditional birth attendant |
| TT | - | Tetanus Toxoide |
| UNFPA | - | United Nations Fund for Population Activities |
| USAID | - | United States Agency for International Development (used to refer to country Mission) |
| VBA | - | Village Birth Attendant |
| VDC | - | Village Development Committee |
| WHO | - | World Health Organization |
| YWCA | - | Young Women's Christian Association |

SUMMARY

At the request of USAID/Suva and with the guidance and support of the USAID funded Child Survival Support Project (CSSP), a MotherCare Team worked in Papua New Guinea from May 5-21, 1991, to complete a maternal and neonatal health assessment. The Assessment Team's activities included an extensive literature review; field visits to East Sepik, West Sepik and Madang Provinces; and interviews with community members, health providers, government officers, and representatives from Council's of Women, churches and other non-governmental organizations in the three provinces and at the national level. Due to time limitations, the assessment focused attention on maternal health issues, with perinatal and neonatal health covered only as they are related to maternal variables. A summary of the assessment's findings and recommendations is presented below.

MATERNAL AND NEONATAL MORTALITY

1. Population-based data on maternal, perinatal and neonatal mortality has never been collected in PNG. According to existing data, most of which come from health facilities, the national MMR is estimated at 700/100,000 live births, with rates as high as 5,000 reported in small area studies. No national estimates for perinatal or neonatal mortality rates were found.
2. The principal causes of maternal, perinatal and neonatal deaths in health facilities are similar to those in other developing countries. They include hemorrhage, infection, obstructed labors and uterine ruptures for women, and birth trauma/asphyxia, low birth weight and infections for newborns. Neonatal tetanus is rarely reported.
3. The underlying causes of maternal and neonatal mortality are undoubtedly related to the following list of well-documented factors: high rates of maternal undernutrition and specific nutrient deficiencies (iron and iodine); high rates of sexually transmitted disease; high parity and little or no access to family planning; the low status, heavy workload and physical abuse of women; high rates of infectious diseases that are exacerbated by pregnancy; and inaccessible or poor quality maternal health services, coupled with low or inappropriate utilization of those services that are available. Cultural beliefs and practices surrounding birth blood, food taboos, and choice of birth attendant are extremely varied and undoubtedly important factors in negative pregnancy outcome, as well. Men control most aspects of cultural, family and social life in PNG. Because they are isolated from the birth process, male understanding of reproductive physiology is extremely limited and their attitudes are often portrayed as important obstacles to improved health for women.

4. While a great deal of information is available on the existence of the above factors, we found no studies addressing their relative importance in cases of maternal, perinatal or neonatal death. Studies looking at cause of death have been confined to deaths in health facilities, or in small, unrepresentative populations, and most have relied on incomplete death registration forms and hospital records for their data. There is obviously a need for more systematic investigation of maternal and related perinatal and neonatal mortality.

MATERNAL HEALTH SERVICES

5. Government and church-run health facilities provide the majority of health care in the country. Services are organized in a pyramidal fashion from primary to tertiary care, and planning and administration are decentralized to the Provincial Health Offices. The Government of PNG has achieved an impressive 96% coverage with primary health care services by placing village aidposts throughout the country. Unfortunately, this coverage statistic does not adequately reflect access to primary maternal health services which are, for the most part, unavailable at the aidpost level.
6. Nursing officers and nursing aides provide most maternal care through static clinics at health subcentres and through mobile MCH clinics that originate from subcentres and health centres. While the government reports relatively high rates of antenatal care, especially considering PNG's rugged terrain and dispersed population, most of the women we interviewed in the rural areas of Momase Region said they had not received antenatal care during their last pregnancy and that they had delivered either alone or with only close female family members present. And, in every village we visited women requested family planning information and/or methods, neither were readily available.
7. The low coverage of primary maternity and family planning services is attributed to the following factors:
 - a. Low utilization of available services: CHWs, nurses and nursing aids working out of aidposts and on mobile MCH patrols are often men; since men are traditionally isolated from the events of pregnancy and childbirth their presence or involvement is not considered appropriate, and therefore they are not used.
 - b. Reductions in MCH mobile patrols: The MCH patrol strategy for extending services is threatened by rising transportation and personnel costs, and by the government's on-going financial crisis. Each province seems to be addressing this problem in a different way, but with a similar result--low MCH coverage in rural areas.

- c. **Limited maternal health content:** The maternal health content of MCH care provided on mobile patrols is limited, as are counseling and educational efforts. Several studies have reported that MCH patrols focus almost exclusively on child health (immunization, growth monitoring) with maternal care either neglected completely or given minimal attention. The reasons for this are not entirely clear.
 - d. **Services are not integrated:** In static clinics, maternal and child services are not generally integrated, thus antenatal care may be offered only once a week or several times a month, making it difficult for women to attend to their own and their children's health needs.
 - e. **Family planning services are limited:** While family planning is available in some health centres and subcentres, it is rarely provided through either mobile clinics or aidposts. Catholic-run health facilities also restrict the methods and information they make available.
 - f. **Cultural barriers to assisted births:** Attempts to train Village Birth Attendants (VBA) have met with varying results. Birth blood taboos, traditional compensation requirements, and restrictions on who can and who cannot see a woman in labor mean that VBAs may be called only when complications arise, complications that a VBA is not generally trained to handle.
8. While maternal care is a very neglected element of PNG's primary health care strategy, the Government deserves praise for its system of emergency obstetrical care. Most subcentres and health centres are staffed and equipped to treat prolonged labors, retained placenta, moderate blood loss, and severe anemias, as well as puerperal and neonatal infections. Norms and treatment protocols for maternal and neonatal care have been produced and are in use. There is also an articulated policy of emergency transfer either by land or air at government expense and many health centres and subcentres offer women who develop complications during pregnancy a place to stay prior to birth if they come for an institutional delivery. Caesarian section capability, however, is still severely limited because of the lack of surgically-trained physicians in the system and their concentration in larger hospitals.
9. Planned family planning programs with USAID/SEATS, World Bank and UNFPA support should greatly increase the availability of family planning services in the future. The government's STD/AIDS program is also well-established and very actively expanding its coverage through categorical and non-categorical STD workers. Top priorities for the program have been improving the quality of STD counseling and laboratory services and increasing public awareness.

ALTERNATIVE CHANNELS FOR REACHING MEN AND WOMEN

10. Women's groups exist throughout the country, the strongest of these appear to be affiliated with churches and religious organizations, however, the Government and some NGOs have also formed and worked with women's groups to varying degrees. While participation in groups has provided some skills and emotional support, in most cases it appears that women's group activities have not significantly changed women's lives. It is also generally true that organizations that work with women's groups have not taken advantage of the potential these groups have for spreading health information.
11. While their strengths and weaknesses vary from province to province, Women's Officers and leaders of Provincial Councils of Women show strong interest in women's group activity. Unfortunately, because they are poorly staffed (the Council, in fact, is voluntary), without resources, and often untrained, their potential to develop programs that benefit women and women's groups is extremely limited.
12. The East Sepik Council of Women (ESCOW) is an exception to this rule and a potential model for other provinces. ESCOW has successfully demonstrated, at provincial, district and village levels, that it can assist women to improve their status in society. Managed by a core group of paid and seconded staff, as well as volunteers, the ESCOW has been able to attract outside funding and government support. An indicator of provincial government support for ESCOW has been the government's willingness to assign four full-time government officers, including the Provincial Women's Officer, to the organization.
13. Specific activities reviewed during this assessment which are directed towards improving women's health and/or women's participation in the development process include the:
 - * Marasen Meri program, a female village health worker training program in Wosera district, and the other programs of the ESCOW which offer training and technical assistance to women (nutrition, income-generation, agriculture, social action, literacy);
 - * Women's Training Package of the National Women's Division, Ministry of Home Affairs and Youth, a set of training materials and action posters for use with development workers and in village training programs;
 - * Village birth attendant training programs that have to varying degrees involved local women's groups in the selection and support

of VBA trainees;

- * Provincial Women's Coordinating Committees, a newly-introduced model at the provincial level for the intersectoral coordination of resources and projects that involve or benefit women;
- * BEST, Inc. Focus on Women Programme, a non-formal education program for women from all levels to develop self-esteem, critical analysis of women's position in society and action to improve women's status; and,
- * Radio programs produced and broadcast at the provincial level. Both weekly health and women's programs are being broadcast in a number of provinces.

14. Other potential channels for delivering health information directly to villagers, which were reviewed only cursorily because of the lack of time, include the National Literacy Program, the Youth Programs of the Department of Home Affairs and Youth, and special training programs of the larger churches. These avenues deserve additional investigation.

CONCLUSIONS

The most serious deficiencies in the system of maternal care, from primary to referral levels, are at the level of the community and family, where traditional practices persist and health information and health workers fail to penetrate. The following conclusions and recommendations focus at this level and are presented for discussion by MotherCare, CSSP and USAID/Suva.

1. To reduce mortality, short-term maternal and infant health interventions must focus on the most common causes of maternal, perinatal and neonatal mortality, and on those that are most amenable to change with the resources at hand. Based on the current analysis, interventions should be directed towards:
 - Increasing family planning acceptance
 - Preventing obstetrical and neonatal complications (primary prevention)
 - Preventing deaths from these complications (secondary prevention)
 - Increasing women's status and access to health information and services
2. High total fertility, low contraceptive use and what seems to be a relatively strong unmet demand for family planning information and contraceptive methods, make family planning one of the most cost-effective interventions for reducing high

maternal and infant mortality rates. If successful, the family planning programs planned with UNFPA, USAID/SEATS, and World Bank support should have a major impact on maternal and neonatal health and survival.

3. At the family level, primary prevention of obstetrical and neonatal complications requires educational efforts to change those pregnancy and birth-related behaviors that are detrimental to survival. This might include encouraging the use of available health services, safer home birth practices, improved women's nutrition both prior to and during pregnancy and lactation, etc. Secondary prevention calls for providing women, their families, and their birth attendants with information about the danger signs to watch for during pregnancy, birth and the postpartum and neonatal periods, and what to do when these occur.

Such education could be provided by health providers, through the mass media (radio), and/or through the training of community groups, especially women's groups.

4. At the health service level, secondary prevention of complications requires antenatal detection of problems, timely referral and specialized care for serious complications. In PNG, this will require improved availability, acceptability and quality of antenatal care. It will also require that all levels of the health service are aware of the criteria for referral of women and neonates to higher levels of care; that they counsel families in need of referral and convince them to go; and, that transport and referral care are provided according to established norms.
5. In order to design effective educational and health service intervention strategies, more information is needed about the relative importance of specific environmental and behavioral factors that are associated with maternal and neonatal deaths, and about the population subgroups in which deaths occur. This includes information about decision-making at the family and the primary health care levels when life-threatening complications occur.
6. The success of each of the above interventions will depend on women's access to the information and the services provided. At the village level in PNG, women-to-women health care is mandatory. This may mean that:
 - female family members are trained to practice safe birth techniques and recognize danger signs;
 - communities are encouraged to request the training of a Village Birth Attendant or Village Health Aid;
 - female CHWs are posted in aidposts; and/or,
 - a new cadre of female health workers is trained for village service.

What ever the strategy, efforts to select and train women as health providers should be supported and encouraged by USAID and the CSSP at every opportunity.

7. The importance of sensitizing and convincing men of the benefits of women's health and development cannot be over-emphasized. Unless men feel it is to their advantage to have women participate in women's groups or to change their behaviors during pregnancy, men will most certainly be a barrier to successful health education efforts. Influential community leaders can have a strong impact on women's health, and on male support for women's development. In this sense, emerging Village Development Committees could play an important supportive role if they are informed about women's health issues.
8. New ways to reach women and men with reproductive health information should be developed and tested. Working through organizations that work with village-level groups of women and/or men could be an effective way to rapidly provide women with needed maternal health information, self-confidence and the support necessary to improve their own health. Other vehicles for providing such information should also be explored.
9. If strengthened and provided with effective leadership, the Women's Division and the National and Provincial Women's Organizations could play increasingly important roles in the coordination of efforts to improve women's health. At present, both structures lack programmatic direction, management expertise and the resources (both personnel and financial) to implement programs that benefit women at the community level. Pilot and demonstration projects with each of these entities, if combined with the political will to resolve some of their internal problems, could result in much stronger and capable women's organizations in PNG.

PROPOSED ACTIVITIES FOR MOTHERCARE, CSSP AND USAID CONSIDERATION

1. A rapid case investigation of maternal and perinatal/neonatal deaths is recommended. Such an investigation would help to determine the relative importance of environmental and behavioral factors where deaths occur. It is proposed that this study be funded jointly by CSSP and MotherCare, with implementation subcontracted to the PNG Institute for Medical Research.
2. A two-year demonstration project in 2-3 provinces is proposed to test the feasibility of disseminating maternal and infant health information through non-governmental agencies that are already working with groups--especially women's groups--at the village level. The project would be developed with representatives from participating agencies in each province and with government officers

seconded by provincial departments to work as part of the project's team; the participation of the provincial Women's Officer and Women's Council representatives would be mandatory. The purpose of the project would be to provide an educational package and training in maternal and neonatal health topics to the field workers of participating organizations; once trained, field workers would then use the materials in their regular work with women's groups, church congregations, youth groups, etc. The materials and training would follow a non-formal educational approach, one designed both to strengthen individual community groups and to result in changes in specific health-related behaviors at the family level. It is proposed that this project be funded jointly by CSSP, MotherCare and the participating provincial governments.

3. Training in project development and management is recommended for 3-4 Provincial Women's Officers and Women's Council Representatives from those provinces that are chosen to participate in the demonstration project. Such training is provided several times each year in Washington by CEDPA (a MotherCare subcontractor) and there are also other Women-in-Development training courses that could be investigated. Funding for such training courses would depend on the source of training, possible matching grant arrangements, and the availability of funds to MotherCare, USAID/Suva, and CSSP.
4. It is proposed that MotherCare support the participation of a representative from the PNG Department of Health at the conference on STD/syphilis and ophthalmia neonatorum, which will be held in Washington from November 6-7, 1991, sponsored by MotherCare and AID Washington. MotherCare could learn a great deal during the conference about PNG's efforts to detect and treat syphilis and other STDs during the antenatal period, and opportunities for future collaboration could also be explored at that time.
5. Maximizing the use of scarce human and financial resources to improve antenatal coverage should become a goal in each province. CSSP is in the position to encourage and help Provincial Health Offices evaluate the coverage and the quality of the maternal health care they provide (antenatal, birth, postnatal and family planning). CSSP might also consider providing assistance to the provinces for the development and testing of new strategies for extending maternal health services to hard-to-reach rural areas. Pilot projects might explore:
 - ways to increase the number of female health promoters and providers at the village level;
 - new, culturally-acceptable roles in reproductive health for male health providers. The study of postpartum administration of ergometrine by APOs, as proposed by CSSP Medical Advisor, Dr. Keith Edwards, would be such an attempt to involve the existing male workers in culturally-

appropriate and potentially important childbirth intervention. Training male APOs to promote and teach men about maternal health and family planning might also be a potentially acceptable and useful role for this cadre of worker.

6. On-going communications between MotherCare and the CSSP are proposed for the mutual benefit of both projects.

I. MATERNAL HEALTH SITUATION ANALYSIS

A. MATERNAL HEALTH

1. Maternal Mortality and Morbidity

At 700 deaths per 100,000 live births per year, Papua New Guinea's estimated Maternal Mortality Ratio (MMR) is one of the highest in the world. Extrapolated from reported deaths only, this official MMR is widely believed to be an underestimate. Since a large proportion of births are known to take place outside of health facilities, it is assumed that the majority of maternal, perinatal and neonatal deaths are also happening at the community-level and that they are consequently unreported. Giving some indication of the magnitude of the problem in more remote rural villages are small area studies that have reported MMRs of up to 5,000 per 100,000 births (Carol Jenkins, unpublished data). Maternal mortality reflects the general health status of women as well as their access to appropriate primary and emergency health care.

It is important to note that population-based data on maternal deaths has never been collected in PNG and that there is no vital events registration system that provides reliable information on even the number of female deaths, let alone reliable information on death by age and cause. A Maternal Mortality Register was introduced in the 1970s, but the quality of reporting is said to have deteriorated in recent years; only approximately 10% of all maternal deaths are thought to be reported through both the national Deaths Register and the Maternal Mortality Register (Mola 1989). A national demographic survey scheduled for next year should give a rough population estimate of both maternal and neonatal mortality rates for the country. There is also mention in the literature of the redesign of the death registration form to make it more useful for analysis of cause of death and the presence of other risk factors.

If we accept the estimated MMR of 700/100,000 births and translate it to actual numbers, it is safe to assume that between 850 and 1,000 women, out of the approximately 125,000 who give birth each year in PNG, die either during pregnancy, childbirth or the immediate postpartum period. In other settings it has been estimated that for every woman who dies from pregnancy or childbirth complications, there are also 6-10 late fetal and early infant deaths related to similar causes. In PNG, this could mean that as many as 10,000 late fetal and early infant deaths also occur each year, many of them directly linked to poor maternal health, nutrition, and/or inadequate maternal and perinatal health care.

Two retrospective reviews of maternal deaths occurring in health facilities, the first for the period from 1976-83 and the second from 1984-86, shed some light on the immediate clinical causes of maternal deaths (Mola and Aitken 1984; Mola 1989).

The leading causes identified in both investigations are similar to those reported in other developing countries, with the top causes being postpartum sepsis, hemorrhage, and obstructed labors/uterine rupture. A comparison of the findings from the two studies is shown in the following chart:

| | 1976-83 Mola/Aitken | 1984-86 Mola |
|--|------------------------|-----------------|
| Puerperal Sepsis | 27% (233) | 25% (77) |
| Postpartum hemorrhage | 25% (213) | 22% (66) |
| Associated medical/ surgical conditions including malaria, ARI, severe anemia, cardiac disease, typhoid, hepatitis, tuberculosis and others | 16% (140) | 20% (60) |
| Prolonged/obstructed labor | 5% (45) | 4% (13) |
| Uterine Rupture | 4% (38) | 3% (8) |
| Abortion | 4% (38) | 6% (20) |
| Eclampsia | 4% (30) | 2% (6) |
| Operative and anesthesia related | 2% (14) | 1% (3) |
| Antepartum hemorrhage | 4% (36) | 6% (17) |
| Others | 9% (80) | 8% (24) |
| Unknown | (28) | (10) |
| Total Deaths | 100% (895) | 100% (304) |

Although not the principal causes of death, prolonged labors, severe anemias and retained placental parts are often complicating factors in cases of hemorrhage and puerperal infection. Unfortunately, the information available on cause of maternal death is limited to data collected by the government's death registration systems. Age of death, parity and other potentially important factors were not included in the analyses.

The presence of factors that often predispose women and their infants to illness and death are well-documented in the literature. They include high rates of maternal undernutrition; specific nutrient (iron, iodine) deficiencies; high rates of sexually transmitted disease; high parity and short birth intervals; the low status, heavy workload and physical abuse of women; high rates of infectious disease that are exacerbated by pregnancy; and, low or inappropriate use of available health services coupled with the frequently poor quality of those services. Extensive discussions of each of these problems and their implications are found in The Health of Women in Papua New Guinea, by Joy Gillett. In the following sections of this report we review this list of problems, adding information and impressions collected during the assessment, and discussing national, provincial and donor agency programs that are currently intended to address each problem area.

2. Undernutrition

The nutritional status of women in PNG appears to deteriorate with age and parity.¹ This is probably the result of a variety of factors including:

1. patterns of food production (foraging vs. gardening);
2. traditional beliefs and food taboos surrounding pregnancy and lactation;
3. intrafamilial food distribution patterns that favor male family members over women;
4. many, poorly-spaced pregnancies during a woman's reproductive life;
5. repeated bouts with serious infection before, during and after pregnancy; and,
6. a woman's daily workload and energy requirements which often exceed the food available to her.

A study conducted by Garner in 1988 in Wosera District, East Sepik found that mean body weight in women aged 20-24 declined from 53 kg. in women with no children, to 51 kg. in women with one child, 48 kg in women with two to three children

¹Jelliffe, D.B., Maddocks, I., "Notes on ecological malnutrition in the New Guinea Highlands," CLIN. PED. 1964; 3(7): 432-8. It was in the course of describing this phenomenon in 1964 that Jelliffe first introduced the term "maternal depletion syndrome."

and 47 kg. in women with 4-6 children. (cited by Gillett, page 54.) In some of the areas we visited during this assessment, particularly those inland from the coast, women are virtually restricted to a diet of Sago (a starchy food harvested from the Sago palm) and greens during pregnancy because of beliefs related to the negative effects of different foods on the birth process and/or the transference of certain characteristics of an animal or food to the fetus. In one of the villages we visited, women said that they avoid all foods from animals with tails during pregnancy so that their infants will not come out looking like snakes. In another, eating animals with claws was said to be prohibited because of the belief that the infant will use the claws to hold on to the uterus and thus not be born easily.

Low weight gain during pregnancy has been noted throughout the country. One study found a mean weight gain during pregnancy of only 6 kilos, or approximately half of that recommended by WHO (Gross 1987, cited by Gillett, page 54). While women did not talk to us about consciously eating less during pregnancy—or "eating down"—to avoid a large baby, as in the example cited above, many of their fears and food restrictions seemed to be related to the fear of a difficult or obstructed labor. In the chronically under-nourished female population of PNG, this fear may indeed have its basis in fact. Since no data on the incidence of cephalo-pelvic disproportion and/or obstructed labors are available, it is impossible to say whether or not this is so.

Among the consequences of maternal undernutrition is giving birth to an infant of low birth weight (less than 2500 grams); UNICEF estimates that 24% of the infants born in PNG are of low birth weight. Low birth weight babies are at a much greater risk of death than infants of normal weight.

3. Anemia and Pregnancy

Iron deficiency anemia is a serious problem for women and children, particularly in the lowland provinces where malaria is endemic. Hookworm infection has also been shown to be an associated factor (Sill, et. al. 1987). In one study, the mean hemoglobin levels for men and women age 30-44 years were as follows:

| | Female | Male |
|------------------------|--------------------------------|------|
| Lowland | 10.0 | 11.4 |
| Islands | 13.7 | 15.2 |
| Highlands | 13.5 | 15.6 |
| Normal Reference Value | (Non Preg) 12.0 (Preg) 11.0 | 13.0 |

(Vines 1970, cited in Gillett, page 63)

These differences in males and females, where both sexes are subjected to similar endemic diseases, may illustrate the combined effects of unequal food distribution at the family level and of depletion of the female body as a result of repeated childbearing workload, etc. Lower mean hemoglobin levels in the lowlands are attributed to malaria

While standard antenatal care includes the distribution of prophylactic doses of ferrous sulfate and chloroquine, many of the women we talked to said that they throw these drugs out, or in some cases that they don't even go to the health centre because they will be forced to take at least the first dose in the presence of the health staff. The most frequent complaints and reasons given for not complying with the prophylactic treatment were the bitter taste of the chloroquine and the "black" feces caused by the iron. Health workers and other informants attributed this behavior to the population's dislike of pills of any kind.

According to health service norms, pregnant women who are found to be seriously anemic (<10gHb% at any time from 36 weeks to the end of pregnancy, or less than 8gHb% at any time during the pregnancy or postpartum) should be given Total Dose Imferon injections; these are available at health centres and subcentres. The norms recommend blood transfusion during pregnancy only in cases with hemoglobin < 5 g%. Facilities for blood transfusions are available in all health centres and some of the larger subcentres.

4. Malaria and Pregnancy

Malaria in pregnancy (particularly the first pregnancy) is often more severe than at other points in the lifecycle; in addition to putting a woman at increased risk of death, malaria is extremely debilitating, can exacerbate existing anemia, and has been associated with higher than normal rates of low birth weight.

In PNG, the number of malaria cases has increased every year for the past decade. In 1989, malaria was reported to be the third leading morbidity and the fourth most frequent cause of death in the country. There are indications that a level of resistance to the malaria parasite has developed in populations that have traditionally lived in malarious areas. At the same time, those populations living in areas of sporadic transmission may suffer more serious consequences from the disease.

Where malaria is endemic, hemoglobin levels are significantly lower than in other areas of PNG. Although anemia during pregnancy is a serious problem, in malaria endemic areas, there is some question about the wisdom of routinely treating anemia during pregnancy with Imferon injections, as called for in the national norms. Studies in PNG and elsewhere indicate that the high concentration of circulating iron resulting from a total dose intravenous iron infusion (TDI) in pregnancy may, in fact, increase the risk of malaria in primigravid women. Consequently, treatment of malaria is recommended instead of treatment of the resulting anemia (Oppenheimer, et. al. 1986).

Unfortunately, resistance to the standard forms of malaria treatment is also a problem for the country.

5. High Fertility and Declining Birth Intervals

In other settings, the number of pregnancies a woman experiences in her life time and the spacing and timing of these pregnancies have been shown to increase the risk of maternal and infant death. The life-time risk of dying from any pregnancy-related cause increases with the number of pregnancies a woman experiences. Also, in most studies that have been carried out to determine obstetrical risk factors, older, grand multiparous women have been shown to be at increased risk of complications. While risk factor studies have not been undertaken in PNG, data reported for 1980-1982 from Milne Bay Province showed that 47% of emergency air charters for obstetric complications were for grand multiparous women, or women who had already given birth 5 or more times (Barss and Blackford 1985).

The total fertility rate for PNG in 1980, was estimated at 5.4 children per woman. In 1989, the Department of Health estimated that new contraceptive acceptance was 2.8% of the eligible population, down from 3% in 1986. There is no data on continuation or prevalence of contraceptive use in the country, but it is probably safe to assume that the current CPR is between 2% and 4%, and that it has not changed substantially, except in the urban areas, during the past 10 years. Since unsupplemented breastfeeding is common, it probably is contributing to reduced fertility and should be protected; therefore, family planning methods that don't interfere with breastfeeding should be promoted.

6. Sexually Transmitted Diseases (STDs)

In 1989, the PNG Health Department reported 22,540 cases of gonorrhoea and 7,119 of syphilis, as well as fewer cases of other STDs, including AIDS. Since many more men than women present and are treated at STD clinics, these numbers probably represent only the tip of the iceberg. The incidence of all STDs has been increasing steadily over the past twenty years, as resistance to the usual treatments has developed; with greater mobility and the opening of industrial and mining centers transmission has probably increased, as well.

In the literature, several studies include estimated STD rates. Excerpts from The Health of Women in Papua New Guinea give a good picture of the prevalence of gonorrhoea in antenatal and maternity cases:

"In 1984, 50 per cent of the maternity cases at the University of Technology clinic in Laie were found to have unsuspected gonorrhoea (Kish 1984). Nearly all of the cases of preterm births, miscarriages and stillbirths were found to have *Neisseria gonorrhoeae* present."

"In Rabaul at Vunapape Hospital, all women admitted to hospital for any reason during a three-week period in June 1982 were screened for gonorrhoea. It was found that 25 percent had positive gram stains and of these 71% were asymptomatic (Reid 1982). (Gillett, Page 91)

Syphilis, as well as gonorrhoea during pregnancy can lead to miscarriage, prematurity, a sick newborn and/or infant death. Syphilis also causes disability and serious illness in women, and gonorrhoea is a principal cause of infertility, which can result in marital discord, abandonment and other physical and social consequences. Gonorrhoea in the mother also leads to blindness in the newborn (ophthalmia neonatorum) unless newborns' eyes are routinely treated with silver nitrate drops or tetracycline ointment as a prophylaxis.

B. CULTURAL BELIEFS AND PRACTICES AFFECTING MATERNAL AND NEONATAL HEALTH

The importance of culturally-determined health behaviors cannot be overstated in a society with over 700 languages and a multitude of traditional tribal groups. Cultural practices and beliefs around menstrual blood and child birth vary, and in a number of cases, they have been studied and are well-documented in the literature. While we hesitate to generalize here, it is important to at least attempt a description of the conditions of pregnancy and home birth so that the reader who is unfamiliar with PNG will have some context for this analysis. The reader is also referred to the paper, "Traditional Birth Attendants in Papua New Guinea: An Interim Report", by Patricia Townsend for a detailed description of reproductive health beliefs and practices.

The following patterns of behavior were mentioned in the literature and/or detected during our interviews with women in the Momase Region.

1. Blood Taboos

Beliefs surrounding menstrual and childbirth blood seem to be present in almost all groups and they are and will most probably continue to be important reasons for the persistence of traditional birthing patterns. Birth blood is believed to cause sickness in those who come into contact with it and, in some areas, it is considered a poison. Men are believed to be affected more by contamination with menstrual or birth blood than are women, and therefore their participation in the birth process is prohibited.

These negative beliefs surrounding birth blood are said to make it extremely difficult for families to transport (in most cases, to carry) women who are bleeding antepartum or postpartum to an emergency health facility. While the fear of birth blood under these circumstances can impede action, perhaps equally as important

as fear of contact with the blood is the need to compensate those who risk this contamination on one's behalf. Compensation is a very important underlying concept in the traditional cultures of PNG. In one village we were told of a woman whose family sincerely wanted to have her carried to a health centre but did not have the pigs that would have been demanded by the clansmen who could have carried her. Perhaps more community education and/or a community commitment to compensate its members for such a risk could be developed to counteract this problem.

2. Prenatal Practice and Food Taboos

According to the literature, prenatal practices may provide some support to primigravid women, at least in matrilineal areas where the first-time expectant mother returns to the home of her mother during the last months of pregnancy and is spared the hard work of gardening, cooking, gathering fire wood, etc. Multigravid women and women in other parts of the country seem to have little change in their daily routines during pregnancy. Food taboos during pregnancy appear to affect all groups, although the restricted foods vary. As described, many taboos are of peripheral items which probably have little effect on the woman's nutritional status. Others, however, especially when combined with reductions in overall food intake or increases in workload, are probably quite deleterious to the health of women and their infants (see section on maternal undernutrition above).

3. Birth Attendants

Traditional birth attendants do not exist in Papua New Guinea as we know them in other cultures (i.e., community-recognized specialists in birthing, who are called to attend many births each year). In most villages, women are either assisted by older female relatives during labor and delivery, or they deliver alone. Therefore, while a typical birth helper might be present at a number of births during her lifetime, she does not necessarily have much specialized knowledge in this area. In recent years, there has been an attempt to train and introduce a Village Birth Attendant (VBA) who works with her community as a volunteer. In the cases that have been documented, it seems that these VBAs have achieved a measure of acceptance, but that in most cases they are called for less than 20% of the births that occur (see discussion in section I.D.5 "The Training of Village Birth Attendants").

In the areas we visited in E. Sepik, W. Sepik and Madang Provinces women told us they leave their homes when labor begins, withdrawing to a place in the "bush" which was said to be close to the village, or in some cases to a special birth hut. There, during the labor, young, first-time mothers were said to be visited by older, female relatives who give instructions, bring food, etc. They may also rub the mother's back and abdomen and actually help to support her during and between contractions. Multigravid women who have had successful, uncomplicated births in the past were said by those we interviewed to slip into the bush for the delivery without telling anyone,

returning only after the delivery. Appropriate birth attendants or companions in this area are women from one's own clan, except for sister-in-laws who are prohibited from seeing or attending to the parturient during this period.

4. Delivery Practices

While the literature has few references to the practice, we were told that herbal teas are sometimes given during labor to facilitate an uncomplicated delivery. According to the literature, no physical or vaginal exams are performed during labor; this should be considered a positive practice because it reduces the risk of contamination of mother and infant. At the same time, however, there is also apparently no traditional knowledge or practice to determine the infant's position prior to or during labor. This is knowledge that might be very useful for prediction of malpresentation and the earlier referral of women who are likely to have complications.

The birth position seems to vary from kneeling to squatting to sitting, depending on the individual woman more than on the location or ethnic group. The documentation on birth practices also mentions that the delivery of the infant is normally passive, i.e. there is no maneuvering to facilitate the infant's exit; external massage to aid in the delivery of the placenta is, however, frequently reported.

The most feared complications of childbirth, according to the literature and the individuals we interviewed, are prolonged and obstructed labors, retained placenta, excessive bleeding and stillbirth. Magical causes (witchcraft and spirits) and/or the failure to follow prescribed taboos, are thought to be related to most complications. The first line of recourse is often to call a local "specialist" who knows the magical cures, or for a family member to perform a sacrifice (i.e. kill a pig) or another accepted ritual to remove the perceived cause of the problem. The literature mentions that moss and ferns are used to absorb birth blood, and in some areas that the juice of certain berries and herbs is used with these materials to stop excessive bleeding--vaginal packing with this type of material may be an important source of postpartum infection.

5. Postpartum Practice and Care of the Newborn

Once the infant is born and the placenta delivered, in most areas the cord is cut with a sharpened sea shell, a fresh bamboo "knife" or a metal blade or knife (one report mentioned that the knife was flamed). In some areas, a string is tied around the cord to stop the flow of blood; in others, the cord is left untied. The length of the cord stump varies greatly from less than 5 cm to more than 10 cm. The most common practice in relation to cord care, is to put no coverings or dressings on it and to leave it open to the air. In our discussions with village women, most seemed to follow this practice, however, several mentioned using coconut oil to help dry the cord. Other traditional preparations mentioned in the literature included breastmilk, and juices of herbs, berries, and leaves.

After the birth and after cleaning herself, her infant and the birth site, a woman in the coastal area of Momase may return with her newborn to a small, special birth hut which has been constructed during the pregnancy by her husband. There she and her infant stay for a defined period of time in seclusion, during this time female relatives visit and help her to cook and care for herself and her infant. Food taboos continue and Townsend mentions that they may be worse in several areas than those required during pregnancy. In the Trobriand Island area, women and infants are kept warm with a fire built inside the postpartum room and heavy wraps.

Traditionally, even once the mother and infant left the birth hut or room, couples did not return to sexual activity until the infant was able to walk. Obviously, this postpartum taboo had a significant effect on the birth interval and the health of the mother, her child and her next infant. As in many other countries, this custom is said to have broken down in some areas and birth intervals are diminishing as a result. However, we were also told that at the village level there still exists social or clan pressure to space births in the sense that men who are perceived to have had too many children too quickly may be publicly chastised.

6. Breastfeeding Practices

Traditional breastfeeding patterns at birth include withholding and/or expressing and discarding colostrum, wet nursing and, in some areas, giving hot water until the "real" milk comes in. From our discussions with village women, it is unclear whether all colostrum is expressed and discarded, or whether only the initial discharge is expressed and then the infant put to breast.

In our interviews with village women in Momase Region, many stated that the infant was first cleaned after birth and then put to the breast if it cried, indicating hunger. At the same time, other women said that they expressed and did not feed colostrum, which in most cases would be present for at least 24 hours if not longer. When asked how long after the birth they waited before breastfeeding for the first time, some gave both answers—saying they started when the baby cried and waited until the white milk came in.

The slightly confusing answers we got to our questions may reflect a variation in practices from area to area, or a mix of traditional practices with practices promoted through modern health education messages. At the same time, they could also reflect the women's knowledge of these modern messages and their desire to give us the "right" answer. During this brief assessment, it was not possible to get a good idea about which pattern of breastfeeding initiation predominates.

While the initiation of breastfeeding may be delayed longer than desirable, it appears that virtually all women outside of the cities breastfeed, often without supplementation for a year or more. To reduce the spread of bottle-feeding in the urban

areas, by law, infant feeding bottles can only be obtained under prescription. In addition, all of the government hospitals and health centres we visited practiced rooming-in.

C. PERINATAL AND NEONATAL DEATHS

Normally, a MotherCare assessment visit of this type includes a review of the perinatal and neonatal health situation, as well as the maternal side of the equation. The time available for this assignment, however, was not sufficient to cover both subject areas with any degree of detail. Therefore, we focused our analysis on the maternal situation, with the understanding that many of the same conditions that predispose women to poor health and pregnancy-related complications and death, also have a negative effect on the health and survival of the infants they carry. Because the two topics areas are so closely related, we were able to collect some information on the perinatal and neonatal situation and feel that it is worth mention here.

1. Causes of Early Infant Death

Neonatal sepsis and other infections, including tetanus, birth asphyxia and prematurity or low birth weight are the principal causes of neonatal death in most developing countries. All three categories of cause of death can be directly related to the health status of the mother and/or the care she receives during pregnancy and delivery. The data on neonatal deaths for PNG seem to validate this pattern; however, data come almost exclusively from facilities and, therefore, are not necessarily representative of the overall situation.

2. Neonatal Tetanus

It is interesting to note that neonatal tetanus deaths are largely unreported at either the village or health facility levels in PNG. Whether this is due to failed recognition and reaction to the disease or to its actual absence as a principal cause of infant death, is not known. If it is indeed absent from the scene, this is presumably not due to successful TT immunization coverage; TT coverage was estimated by UNICEF to be 57% of pregnant women in 1988, up from only 17% two years earlier.

Although the presence of tetanus spores is confirmed by the number of adult tetanus cases reported, several of the individuals we talked to suggested that spores may not be as concentrated as in other settings because of the absence of large, bovine animals, e.g. cattle and buffalo. It is also worth noting that umbilical cord care practices, while certainly not sterile, may leave the umbilicus less susceptible to tetanus infection than in other settings where tetanus is a major cause of neonatal death. New bamboo cuttings, sharpened sea shells, and flamed blades could conceivably be less noxious instruments for cutting the umbilical cord of the newborn than some of the

instruments used in other developing countries. The fact that Papua New Guineans do not use the particularly dangerous covers and dressings on the cord (i.e. dung, spider webs, etc.) used in some other countries, may also mean less potential contamination with tetanus spores. Delivery in the bush or in a specially constructed hut may also mean less contamination than if birth were to take place in an area shared by humans and domestic livestock. In the highland areas of the country, the absence of tetanus may also be related to altitude, as is the case in the highlands of Guatemala, Bolivia and other mountainous countries.

While these may all be reasons why neonatal tetanus is not reported where we would expect it to be, lessons learned from other settings indicate that we should be suspicious. Neonatal tetanus may actually be present but seriously under-reported; this could be true either because the population does not recognize or have a specific name for the disease, or because they do not seek health care when it occurs.

3. Other Neonatal Infections

At the same time that neonatal tetanus appears to be rare, sepsis, meningitis and pneumonia are recognized causes of neonatal death throughout the country. The etiology of neonatal sepsis, even in developed countries, is poorly understood. In PNG, a number of factors may be related to the problem. An on-going study by the IMR on neonatal sepsis, meningitis and pneumonia has detected an exceptionally high rate of positive STD infection in infants admitted with the clinical signs of sepsis (personal communication). Given the continually high rates of STDs documented in the country, this is a finding that warrants further investigation. Cord-cutting and other newborn care practices that have been documented in the literature may also be significant causes of neonatal infection. Pre-existing maternal infection of the reproductive tract (chlamydia, bacterial vaginosis) and/or lowered resistance to infection in low birth weight and anemic infants, as well as the discarding of colostrum and delayed initiation of breastfeeding, must also be considered.

4. Low Birth Weight

As mentioned earlier, UNICEF has estimated that 24% of the infants born in PNG are of low birth weight (LBW). While it is unclear where this estimate has come from, it would not be unrealistic to expect this high LBW rate given the prevalence of maternal conditions, especially undernutrition, malaria and STDs, that are known to cause intrauterine growth retardation and/or preterm delivery. The effects of LBW on survival are dramatic in all countries. One reference states that in 1985, 72% of neonatal deaths at the Port Moresby General Hospital occurred in LBW babies (Vince 1987).

In addition to high rates of STDs, malaria, undernutrition, overwork and stress during pregnancy, and the physical abuse of women, there is also widespread use of substances that are known to have a negative effect on birth weight during pregnancy.

Cigarette smoking, chewing betel and drinking alcoholic beverages during pregnancy are common practices; a study of women attending antenatal clinic at Post Moresby General Hospital reported that 67% of the women interviewed were using betel at the time of the interview (Marshall 1985). While it is widely believed in PNG that betel is detrimental to the growth of the fetus, the negative effects of this have not been sufficiently studied.

C. MATERNAL HEALTH SERVICES

The Government of PNG has achieved an impressive 96% coverage of the country with primary health care services; coverage is defined as the percent of the population that is within two hours of some type of health facility. This statistic is extremely misleading, however, when it comes to estimating access to maternity-related and family planning services. For reasons that will be discussed below, it seems that women in rural areas of PNG typically receive little antenatal care and that the majority experience childbirth either alone or with only close, female family members in attendance. Access to family planning information and contraceptive methods is also severely limited in the rural areas.

1. The Structure of the Health Care Delivery System

Papua New Guinea's health care delivery system is comprised almost exclusively of government and government-subsidized, church-run health facilities. While there is a small private sector (modern), it serves a higher income, urban population and therefore is not considered in this analysis. Government and church-run facilities are organized in a typical pyramidal structure from primary to tertiary referral levels, with administration decentralized to the provincial level and implementation to the health centre or district level. In 1990, government health facilities included 19 hospitals, 36 urban clinics, 195 health centres, 278 subcentres and 2,304 aidposts. A description of the general characteristics, functions and staffing of each type of facility is included in the Papua New Guinea National Health Plan 1991-1995; to avoid repetition, that description is appended as Appendix 3 of this report.

Health centres, subcentres and aidposts comprise the rural health network. 28% of health centres and 62% of subcentres are administered by churches, under contract to the government; the remaining facilities are government run. While the titles "health centre" and "subcentre" theoretically denote a specific size facility and type of staffing, in some cases health centres are actually staffed and run like hospitals; likewise, some subcentres resemble health centres in their size and staffing. A new category of rural or district hospital has been created to better reflect the characteristics of larger health centres.

The principal providers of maternal and reproductive health care at both

the subcentre and health centre levels are nursing officers and nursing aides. Working out of static clinics and on mobile MCH patrols, nurses are responsible for providing antenatal, delivery, postpartum and family planning services, as well as immunization, growth monitoring and general well-child care. Theoretically, Health Extension Officers (HEOs), the senior officers at most health centres, also participate in these clinics, although it is unclear to what extent.

At the aidpost, primary health care services have traditionally been provided by a male Aid Post Orderly (APO) who was neither trained nor responsible for maternal care. In recent years (since 1987) a new type of aidpost worker, the Community Health Worker (CHW), has been trained in both curative care and maternal and child health, including basic obstetrics and family planning; according to the government's plan, the CHW will gradually replace the APO at the aidpost level. While a significant number of female CHWs have now been trained, we were told that many recent graduates, both male and female, have been posted not to aidposts in rural areas as originally intended, but to health centres and hospitals. If the government succeeds in doing so, the posting of female CHWs to the aidposts will greatly expand the coverage of maternal health services; however, this is not expected to occur over the short term.

A variety of village-level health volunteers and committees have also been trained over the years by government, NGO and church health services, some with more involvement in women's health than others. They include:

- o Village Health Aids - mostly male, volunteer, primary health care workers whose functions are similar to the APO's in that they are trained in basic first aid and some curative functions.
- o Marasen Meri (Medicine Woman) - a female Village Health Aid trained in East Sepik Province by the Provincial Women's Council and the Provincial Health Office (see description in section II below).
- o Family planning community-based distributors (CBD) - men and women trained by the Family Planning Association of PNG to promote and sell oral contraceptives and condoms at subsidized prices, and to refer for other family planning methods.
- o Village Birth Attendants (VBA) - a village woman who is trained to attend labor and delivery, practice safe birthing techniques, and recognize and refer problems to the nearest health facility. VBA training programs are discussed in greater detail in section 6 below.

- o Village Health Committees - in most cases, these were formed prior to selection of one of the above types of workers for training. It is not clear what type or duration of orientation or training was provided to them.
- o Village Development Committee (VDC) - this committee includes all of the principal leaders of a village, including a representative from the women's group, if there is one. The structure and function of the VDC follows the Basic Human Needs, community participation model in use in Thailand, with the VDC receiving orientation from a multi-sectoral team of extension workers, developing a plan for improving their own community, and then working with the extension team to obtain the resources and training needed to implement the plan. Interestingly, the Provincial Health Offices appear to taking a major role in the organization and training of the VDCs, perhaps because Health is one of the only government departments that has staff at the village level. While women are nominally represented on the VDC, because they are greatly outnumbered and because women are reluctant to speak in groups of men, it is doubtful that their concerns or priorities receive the VDC's attention unless there is encouragement and support from outside.

The current numbers and the distribution of these village workers is unknown. Except for the Birth Attendant category, the 1991-1995 Health Plan does not mention the individual village volunteer workers as an element of the government health strategy. The Plan emphasizes the role and training of VDCs and the need to increase community participation in health.

During the assessment we were fortunate to be able to meet and interview each of the above types of village health workers. We were also fortunate to attend a six-month VDC review workshop organized by the East Sepik Provincial Health Office, with four VDC's from Wewak District in attendance.

2. Estimated Coverage and Utilization of Maternal Health Services

While the presence of an aidpost orderly or CHW in close proximity may guarantee a certain level of care for sick women, in rural areas it appears that their access to other important preventive and pregnancy-related services may be extremely limited. In villages that are more than an hour's walk from a health centre or subcentre, or those in the vicinity of centers where male health workers provide maternal services, it is our impression that most women receive little or no formal health care before,

during, or after childbirth². Access to family planning services is likewise restricted.

While CHWs in aidposts and mobile MCH patrols theoretically extend maternal care to isolated areas of the country, according to those we interviewed and to the literature:

- o CHWs are not yet in place in most rural aidposts and the aidpost orderlies who are present do not provide MCH services;
- o MCH patrols are frequently not carried out as planned;
- o MCH patrols frequently neglect antenatal and family planning care; and,
- o MCH providers--who are often male--are not acceptable to and therefore not used by the target population.

These facts lead us to question published statistics on the coverage of antenatal care which was estimated at 67.5% in 1989. During that year, government health facilities reported 84,830 new antenatal visits (Department of Health 1989). This is a relatively high rate of coverage given PNG's logistical and cultural barriers to the use of antenatal care. Given our discussions with women in rural villages, who in most cases reported no antenatal care, this rate seems high.³

Data from East Sepik Province gives some idea of the differential rates of antenatal attendance in urban and rural areas:

² During this assessment we were unable to generate estimates of geographic access to health centers and subcentres for the 87% rural population. It should be possible to generate at least a rough estimate, however, using the locations of health centers and subcentres, the 1990 census data on population and population density by subdistrict, and assumptions about the average percent of population living within 1 hr. of these facilities.

³ As utilization rates are calculated on the basis of daily patient registers, it is entirely possible that reporting problems are leading to even higher estimates of prenatal care coverage than would be produced if population-based data were available.

| Area | % of women with at least one antenatal visit |
|--|---|
| Wombisa (rural subcentre) | 18.7% of pregnant women |
| Maprik (large health centre) | 28.4% of pregnant women |
| Wewak District (hospital and urban clinics) | 84.5% of pregnant women |

(Source: East Sepik Health Office)

In 1989, the Department of Health also reported 47,773 assisted deliveries, the majority in hospitals, health centres and subcentres. This represents approximately 38% of the total expected births for the year. Again there is a tremendous difference between urban areas, where there is growing demand for institutional birth, and rural areas where utilization is very low. The reasons for low utilization of both antenatal and institutional birthing services in rural areas are discussed below.

3. MCH Static Clinics and Patrols

Static MCH clinics are held in all subcentres and health centres, but services are rarely integrated, meaning that the different services (antenatal care, family planning, immunization, STD, and general outpatient care) may be scheduled on different days of the week or month. This lack of integration is mentioned in the 1991-1995 Health Plan as one of the principal reasons for low utilization of reproductive health care and the many missed opportunities at health facilities for such care. The reasons given at health centres and subcentres for holding separate clinic sessions include the need to schedule activities so that limited MCH staff are free to spend a certain portion of the month on mobile patrols. While this is reasonable, scheduling could probably be worked out to both meet patrol commitments and to offer integrated MCH services at fixed sites so that they are more readily used by those who need them.

At present, the MCH mobile patrol is the primary mechanism for delivering antenatal and family planning care beyond the subcentre level. According to the available literature and to women and health workers interviewed during this visit, MCH patrols rarely include antenatal or family planning care, focusing instead on immunization, growth monitoring and general curative care (Reid, 1983). And, in the case of family planning, it appears that even where MCH staff have been trained, they have not been encouraged to include contraceptive distribution and follow-up on mobile patrols. While lack of time and privacy at MCH mobile locations were mentioned as reasons for weak maternal services, it is not entirely clear why these essential services are neglected.

A national effort to strengthen the maternal component of MCH patrols might help to improve coverage. At the present time, however, the MCH patrols themselves have been severely cut-back because of repeated reductions in the health sector budget. As the real value of the budget shrinks, fixed personnel costs are claiming an ever-greater proportion of the recurrent budget, leaving less and less money for the transportation and allowances required to support MCH patrols.

In two of the three provinces we visited, government MCH patrols had either been suspended or they were being conducted sporadically. An analysis that was shared with us by the Provincial Health Office in East Sepik, showed that only a quarter of the MCH static and mobile clinics planned for 1988 in the Sepik River Basin, 50% in the mountainous regions and two-thirds in the more accessible coastal areas, were actually conducted. In West Sepik, MCH patrols from health centres to remote areas were still being conducted at the time of our visit; nearby patrols had been cut and the Catholic-run health facilities, which are the majority in this province, were planning to suspend patrols due to a sizable shortfall in government support for the year. In Madang, we were not able to visit rural health centres or subcentres, but were told at the Provincial level that patrols are still being conducted more or less regularly. In our discussions with health providers and provincial officers, a variety of reasons were given for suspension of patrols; the majority were related to a lack of funds for transportation costs and the payment of worker's overnight allowances. In East Sepik, law and order problems were also mentioned.

4. Cultural Acceptability of MCH Services

While traditional pregnancy and birthing patterns persist throughout the country, we should mention that there is also an increasing demand for antenatal care and institutional birth. This seems to be particularly true around urban areas and among women with higher levels of education. It may also be true of women in rural areas who would like to, but are unable to attend clinics for a variety of reasons.

A serious impediment to maternal care is the fact that even when antenatal and birthing services are offered, they may be unacceptable to women because health workers are male. This is true at the village level, where women told us they do not seek out male CHWs even though this new cadre of worker has been trained and is expected to provide maternal care. It is also true in relation to some health centres and subcentres where male nursing officers are perceived to be those providing antenatal and delivery care. According to the villagers and health workers interviewed during this assessment, many mobile MCH teams and virtually all APOs are male. Given what seems to be the universal prohibition of male involvement in all aspects of pregnancy, birth and menstruation, it is not difficult to understand why rural women are reluctant to seek care from male health workers. Given this situation, it is also not difficult to understand the frustration expressed by both the village women and the male health workers we interviewed.

Unfortunately, the relatively low educational level of rural women, when compared with the current standards for admission to health training programs, makes it difficult to find women in rural villages who can be trained as CHW or nurses and returned to their villages. It is also difficult to post the mostly young, single female workers who do qualify for such training in villages other than their own. Therefore, despite the government's efforts to increase the numbers of female nurses and CHWs in rural health facilities, the current situation is not expected to change dramatically in the future unless selection criteria and training curricula also change to favor rural women.

5. The Training of Village Birth Attendants

There are a number of on-going programs in PNG that aim to improve birth outcomes by introducing a specialized VBA, or a village woman trained to practice safe birth techniques and to monitor women during labor and delivery. In contrast to countries where traditional birth attendants are in practice, these programs face the double challenge of identifying and training appropriate birth attendant candidates and convincing families in the villages to use them.

Descriptions of such programs have been published in journals and reports, many of which we have listed in the bibliography of this report. A particularly useful summary document describing past and current programs was also prepared and provided to the MotherCare team by CSSP Nursing Advisor, Margaret Street.

UNICEF (8 districts in Southern Highlands Province, and Losuia District, Milne Bay Province), Project Concern International (Kaiapit District, Morobe Province), Lutheran Health Services (Finschaffon District, Morobe Province), South Simbu Rural Development Project (Karamui District), and the Salvation Army (Kainantu District, Eastern Highlands Province) are all involved as donors and/or implementing agencies in VBA training programs. Each of the programs has developed a different training strategy and curriculum and, according to the various reports, some have succeeded to a greater degree than others in increasing the numbers of assisted deliveries in their program areas.

The constraints faced by VBAs in their communities include:

- o Traditions that dictate that only women from the immediate clan of the parturient can assist at delivery, and that the husband's sisters cannot attend. This means that a VBA may not be called outside of her own clan and that even within her own clan there will be women that she cannot attend. Therefore, even in the most supportive communities, she may only be called upon to attend a small number of births each year.

- o Because of the birth blood taboos, the VBA may encounter opposition from her own family, or she may expect or be perceived to require compensation. Traditional compensation for risking this type of contamination may be more than most families are willing to pay under normal circumstances. Again, this could limit the number of births she is called to attend.
- o Because of the compensation required, if a VBA is called, it may be because there are complications—complications that the VBA is generally not trained to handle. If she tries to handle these and the woman or infant dies, or if she has to refer and the family incurs even greater expense, her esteem in the village may suffer. Again, this can result in low utilization of her services.
- o Communities are not always supportive of the VBA, or they may perceive that her training by the government means that she is (or more often that she should be) paid for her services by the government, and not the family. This misunderstanding and the lack of compensation for VBAs was mentioned several times in the literature.

The Department of Health and the CSSP conducted a national workshop immediately preceding this assessment to review the experiences of the various VBA training programs. On the basis of the workshop findings, guidelines for VBA selection and training, and for VBA training programs were developed. These guidelines are intended for use by any organization interested in starting a VBA program and will undoubtedly be of immense use in the future.

The feasibility and the cost-effectiveness of replicating VBA training as a national program is controversial, primarily for the reasons stated above. As mentioned earlier, even in the best of circumstances, trained VBAs are rarely called for more than 20% of the births, and while these may be the most problematic births, there is little in the VBA training curriculum to indicate that the VBA alone would be able to handle them. Intuitively, it seems that the VBA's recommendation that a woman be moved to a referral service might be enough to save some lives; but the magnitude of this effect would probably be small.

To train VBAs or not to train VBAs should most certainly be left up to the communities and to the local health authorities, both of which will have to support the VBA if her training is to put to good use. Given the lack of attention to women's health needs, we feel that the training of any women at the village level in maternal health topics should be encouraged.

In the context of PNG's village births, where all female family members may be called upon to assist, focused orientation for all women might be important than the training of an individual VBA. The importance of orientation for husbands, brothers, fathers and village leaders must also be considered since male family members control family resources and it is they who play the critical roles in an emergency situation.

6. The Quality of Maternal Health Care

This assessment did not focus as much attention on the quality of maternal care as it might have because this subject area is the focus of other programs and donors. Several observations, however, are worthy of mention.

First, we were impressed by certain elements of the perinatal care and emergency referral systems, especially as these compare to systems in other developing countries. At the level of clinical screening and management, small, very usable handbooks of norms and protocols for obstetrics and pediatrics have been developed and printed; most importantly, we found these manuals in use in the health centres and subcentres we visited. We also found a standard antenatal card in use and a variety of partographs and cervical dilation charts in the delivery rooms we observed.

While we visited only a small number of facilities, in terms of emergency care, we were pleased to find blood banks in the health centres we visited and to be told that all health centres in the country have blood banks and/or transfusion capability. Oxytocic drugs are also available and protocols for their use were on the walls of delivery rooms in several of the subcentres and health centres we visited. While most health centres and some provincial hospitals still do not have caesarian capability because of the absence of surgically-trained physicians, vacuum extractors are apparently found in all health centres, some subcentres and all hospitals. And, all HEOs, the officers in charge at the health centre level, have been trained in manual removal of the placenta.

The government also has an articulated policy of emergency transfer when obstetrical intervention is required. In fact, we heard many stories of such transfers both by airplane and vehicle from even the most remote areas. The only complaint about this system was related to the requirement that a transfer be authorized prior to moving the patient, first, by the in-charge of the area health centre and, when a patient is to be moved outside of a province, by the provincial health officer. The major complaint was that this added to the delay in actually moving a patient. While the effects of this requirement should be investigated, since emergency transport is paid for by the government, it is easy to understand why some type of assessment and authorization is required.

In summary, if we compare PNG to many other developing countries in terms of the basic clinical ingredients for what WHO terms emergency obstetrical care, PNG ranks relatively high.

On the negative side, the maintenance and hygienic conditions of several of the health centre delivery rooms we visited were less than optimal. Bloody plastic sheets and filthy delivery areas may reflect lack of janitorial staff, lack of awareness of the need for cleanliness in the delivery and postpartum areas, and/or reluctance to clean-up (and risk the contamination of) birth blood. Whatever the reasons, these problems could be addressed through infection control training and improved supervision.

There are also a number of hospital and health centre norms that women say impede their use of institutional birthing services. These include what appears to be a universal norm of practice in PNG which requires that all women give birth in a horizontal position on a bed; this is in contrast to the traditional squatting or kneeling position close to the floor. Nursing staff told us that the reason for this was to prevent tears (the danger of which they believe is greater in the squatting or kneeling position) and to prevent injury or contamination of the newborn. While these are valid concerns, the international body of literature has shown that the traditional positions are physiologically preferable in childbirth to the prone position favored by medical practitioners, and that with minimal modifications of the birthing environment and training of providers injuries to mothers and newborns can be avoided. Other institutional practices that women told us are unacceptable include vaginal and physical examinations in government health facilities by male nurses; the lack of privacy during labor and delivery; and, the negative attitudes of health workers towards their clients.

As a final point on the quality of care, it appeared that both static and mobile MCH clinics were ill-equipped to provide educational talks or counseling on maternal and neonatal health topics. We found few educational materials except for posters in any of the facilities we visited and most of the posters were unrelated to the topics of interest. One Provincial Health Education Officer complained that even when he had given educational materials to aidposts and centres, he had gone back only to find them unused and frequently in very bad condition. His explanation was that workers did not feel it their responsibility to conduct health education activities. In this vein, CSSP is developing a reproductive health flip chart, which at the time of the assessment was in the design and pretest phase. If accompanied with training in its use, this flip chart would undoubtedly be a useful educational tool.

7. Family Planning Services

As mentioned earlier, neither MCH patrols nor aidposts, the two mechanisms for health service delivery in the rural village, provide routine family planning services. Few APOs have been trained in family planning and, while MCH

nurses and CHWs are trained to provide this service, they are rarely reported to do so during patrols. At the same time, the family planning services that are available in health centres and subcentres appear to be weak or, in some cases, non-existent. This is particularly true in those areas served by Catholic-run facilities, although government facilities in the provinces we visited also seemed very weak.

In each of the communities visited during this assessment, women asked us for information about family planning. Given this fact and the almost complete lack of family planning services outside of the urban areas, we conclude that there is a large unmet demand, as well as an overwhelming need for child-spacing/family planning information and services.

New bilateral and multilateral assistance projects (AID-SEATS, UNFPA, and World Bank) with the Government of PNG will be initiated during the next year to expand and improve family planning services throughout the country. These projects, if they are successful at reaching rural as well as urban men and women, should result in increased contraceptive prevalence, reductions in fertility and improved health status for women and infants.

In areas served by Catholic-run health facilities, however, special effort may be required to assure that a full range of family planning services are available to the population. Because of the assistance provided to the government by the church-run facilities, where these predominate it may be difficult for the provincial health offices to take the required measures to make family planning available. In such areas, alternative family planning service delivery systems through community-based-distributors are being studied.

8. STD/AIDS Control Program

The Department of Health's STD/AIDS Program is a well-staffed, and apparently well-funded program that has been in operation for several years; outside funding and technical assistance are provided by the European Economic Community and WHO. There are currently 15 STD clinics operating in health facilities throughout the country. Both clients seeking care and those referred from other hospital and health centre services are attended at the STD clinics, which are generally located in a specially designated set of rooms within a parent facility. In theory, STD screening is also included at the initial antenatal visit as well as during the last trimester of pregnancy. While this may be the case in some facilities, in others only suspected cases are said to undergo testing. The ratio of men to women presenting at STD clinics is approximately 3 to 1.

Where laboratory facilities with equipment to perform VDRL and gram stain exams are not available, trained laboratory technicians prepare specimens and transfer them to the nearest equipped laboratory; RPR Cards are also used for initial

syphilis screening but it was not clear how extensively. Even though a laboratory exam is encouraged to verify a possible STD, and such exams are said to be performed where possible, it is not uncommon for a woman to be treated without an exam on the basis of clinical signs alone or as a contact.

To date, the STD/AIDS Program has focused most of its attention on improving the skills of categorical STD workers and on expanding and improving its network of STD clinics. During the past year, a manual was developed and training courses were conducted to up-grade the skills of laboratory technicians and other health workers who conduct lab exams. The Program has also emphasized improved counseling skills for STD clinic workers; a training package to improve counseling skills has recently been completed. From a very brief review, it appears that the initial portion of this well-organized manual could also be used to improve general health worker counseling skills, as well as those specific to AIDS and STDs.

An apparently successful effort has also been made to inform the public about the threat of AIDS and to increase knowledge about this and other STDs. A number of workshops have been carried out by the STD/AIDS program staff for government extension officers, including one in November of 1990, hosted by the Women's Division of the Home Affairs and Youth Department, which included provincial women and social welfare officers as well as church and Women's Council representatives. According to the STD/AIDS program plan, follow-up to this workshop should include development of educational materials that can be used with women's groups at the grassroots level.

In the future, the STD/AIDS program will focus on improving the knowledge, and the diagnostic, treatment and counseling skills of "non-categorical" STD workers; non-categorical STD workers include HEOs, nurses, nursing aids, APOs and CHWs, all of whom regularly see men and women who may be infected with one or more STD. During the second week of May, program staff facilitated a workshop in Madang Province to develop "distance" training materials in STD/AIDS for non-categorical clinical staff. According to STD/AIDS staff, the results were very promising. In addition to reference materials, "Shell Books" on syphilis, gonorrhoea, Donovanosis, and AIDS were developed. "Shell Books" are simple picture and message booklets that can be used to counsel individual patients and to conduct educational activities with community groups. Important information or messages are printed in Tok Pidgin with a space designated for the worker to translate the message into Tok Ples. Unfortunately, these materials were not available for review at the time of our visit.

II. ALTERNATIVE CHANNELS FOR REACHING WOMEN AND MEN WITH INFORMATION AND SERVICES

One of this assessment's principal objectives was to investigate the feasibility of working through non-health sector organizations to improve maternal health. Given the fact that the current health care delivery system is not adequately reaching village-level women, this line of investigation was felt to be extremely important.

In the sections that follow, we review the status of women's activities in the communities that were visited during the assessment. We also describe the various organizations and programs that currently reach or have as their mandate to reach women in their own villages and we describe an number of projects and organizations that could be considered models and/or resources for future maternal health efforts.

A. WOMEN'S GROUPS AS A CHANNEL FOR MATERNAL HEALTH PROMOTION

1. The Coverage of Village-Level Women's Groups

There are no estimates of the number of women's groups in Papua New Guinea nor any national information about the characteristics of these groups. Throughout the areas we visited, and presumably throughout the country, there are many organized and semi-organized groups that involve women. At present, the strongest of these appear to be women's church groups, but governmental and other non-governmental organizations are also involved. In theory, government officers at the provincial level coordinate all women-related activities, working both on their own and in coordination with the other organizations. One important point to keep in mind is that the configuration of organizations, and their relative strengths and weaknesses, vary from province to province.

2. Women's Church Groups

The church-based women's groups we visited were affiliated with the Seventh-Day Adventist, Catholic, and Lutheran churches. Although church support (orientation, regular contact, special programs) for these women's groups have waxed and waned, in general, church groups seemed to meet regularly and they talked enthusiastically about their activities. Church-based groups told us they meet primarily for spiritual fellowship, home-making or local fund-raising activities. These activities undoubtedly provide some skills and emotional support in an environment where women receive little reinforcement or reward.

Although several of the groups mentioned that members had attended church-run training meetings in their districts, we were disappointed to find that none of the groups we met had been offered health training nor given support for health promotion activities through their churches. In fact, with the exception of a very well-organized group near Fatima Station in West Sepik, the groups seemed largely undirected in their activities. This may also be the case in other parts of the country.

In the literature there are references to projects, supported by the Lutheran, Catholic, Seventh Day Adventist and the Salvation Army churches, that have trained women as village birth attendants and/or primary health care workers. These health worker training programs seem to have been organized through church-run health facilities, but not necessarily through the churches themselves. Outside of these health worker training programs, we did not find any mention of general health education activities for larger church congregations or women's groups.

3. Government-Assisted Women's Groups

Women's groups formed by government welfare officers appear to have been active in the past, but those we met during this assessment expressed frustration at the lack of support that they had received in recent years. Most of them, consequently, had ceased to meet or function. In our discussions with these groups and with the provincial government authorities, we were told that government-supported women's group activities were more widespread in the early 1980s than at present. While it wasn't clear why activities had fallen off, since the drop in government support seems to have coincided with decentralization, it might be interesting to look more closely at the relationship of the two events.

4. Other Non-Governmental Organizations and Associations

A number of non-governmental organizations, some with strong religious ties, like World Vision, Country Women's Association, and YWCA, also work with women's groups in towns and rural villages. In theory, all village women's groups can affiliate with one of the church or non-governmental associations of women. District and local women's associations are encouraged to become members of their provincial and national level bodies, as well as of the Women's Councils at each level. The Melanesian Council of Churches has a women's division that coordinates and offers assistance to church-affiliated women's associations at the national level. It is not clear whether these associations actively organize and work with village women's groups, or whether they merely represent existing groups and their interests.

5. Department of Home Affairs and Youth, Women's Division

Women's activities in PNG fall under the Women's Division of the Department of Home Affairs and Youth at the national level, and its equivalent division at the provincial level. The national Women's Division works both on its own and in coordination with other government departments to plan and implement programs that both benefit and involve women in development. The Division is understaffed for the task at hand, with each officer in charge of activities in several sectors. The national Women's Division works closely with the National Women's Council and is responsible for distributing government funds to national and provincial Women's Councils.

At the provincial level, women's activities fall under the Assistant Secretary (AS) for Community Development or Social Welfare (names seem to vary from province to province). In each of the three provinces we visited, a female officer had been assigned under this division as the Provincial Women's Officer. While there were also government positions for district welfare or development officers in the past, these positions were apparently abolished several years ago (in West Sepik the Provincial Secretary talked about trying to recreate these positions.)

Without district level staff, Provincial Women's Officers have no one within the government system with whom to work and, as such, active community visiting and on-going activities at the subdistrict and village levels are virtually impossible. They can and should, however, work with the Provincial Women's Councils, churches and NGOs to carry out women's activities. The degree to which this actually takes place appears to vary from province to province, depending on the initiative of the Women's Officer and the support and encouragement she receives from her superiors. One of the reasons given by the Assistant Secretaries for weak women's activities in the provinces is the Women's Officers' lack of qualifications and training for their jobs. This was also mentioned as a problem at the national level.

6. National and Provincial Councils of Women

The National Council of Women (NCW) is a non-governmental, voluntary organization which was established in 1975 to help women participate more equally in all aspects of development. The objectives of the Council are to:

- o Work with the Women's Division to implement policies concerning women;
- o Act as a pressure group to influence government policy concerning women;
- o Increase women's awareness concerning social and political issues;

- o Help women take a more active part in decision-making at all levels;
- o Design programs for women to improve their status and well-being; and,
- o Maintain an effective national women's network among women's organizations inside and outside Papua New Guinea.

The NCW has no fixed income or financial subsidy. Funds are obtained through requests to the National Government and through membership fees (\$K 100 per year) which affiliated women's associations pay (e.g. Country Women's Association, YWCA, Anglican Women, United Church Women's Fellowship, etc.)

The NCW's president is elected by the membership. The NCW office is currently located in the Department of Home Affairs and Youth in Port Moresby, in the same office as the Women's Division. The relationship between the government's Women's Division and the non-governmental, voluntary National Council of Women is a close one; with the distinction between the two difficult to understand.

Although the NCW has had organizational problems, it has still managed to develop a foundation for women's increased participation in development. The primary obstacle to carrying out the Council's mandate appears to be the lack of coordination and communication between the national and provincial Councils. Lack of financial and political support for the NCW was also said to be a problem.

Emerging from the dispute between the national and provincial Councils, came the creation of the Regional Women's Representative position in 1989. Recently, Regional Representatives have been chosen and given the task of reorganizing and providing support to the Provincial Councils; unfortunately, however, they have not been given the resources to do the job.⁴ At a recent meeting of the Ministers from the four provinces in Momase, they committed resources to the establishment of an office for the Regional Women's Representative and support for her work. If this comes to pass, then provincial activities in Momase and interactions between the Provincial Councils and the NCW can be expected to improve.

The Provincial Councils of Women seek to bring women's organizations together to facilitate and support women's development. The president and vice-president are expected to work with the Provincial Women's Officer to undertake activities in the province. The strength and effectiveness of this relationship varies from province to province. Due to the fact that the Council has only volunteer officers and the Women's Officer operates alone, and both entities have few resources and no district level staff, even with the most dedicated individuals sustained effort would be difficult.

⁴ The Regional Coordinator for Momase, Mrs. Maria Ibai Hayes, planned and accompanied the MotherCare Assessment Team during this visit to the region.

Another serious problem for the Provincial Councils is that their leadership is dependent on an annual election, therefore, officers change frequently, and the women elected may or may not be those most qualified or interested in development activities. In general, Provincial Councils are said to be weak.

While there has been obvious interest in the formation of women's groups at all levels, the government agencies, voluntary organizations and churches that have stimulated formation of such groups seem to have had very few development programs and/or resources to offer them. This is unfortunate since we know from experiences in other countries that with a little encouragement and training, women's groups can be an important resource for health improvement and general development at the community level. Also, without such direction and assistance, most groups will not survive--women in Papua New Guinea and most developing countries are simply too overworked to put time into activities that do not bring them tangible benefits.

An important exception to this rule is the East Sepik Council which has developed strong programs and leadership. East Sepik's Council is described below.

B. POSITIVE EXAMPLES AND STRUCTURES THAT REACH WOMEN

1. The East Sepik Council of Women

The East Sepik Council of Women (ESCOW) could be looked on as a model for the support of women's activities throughout the country. ESCOW has grown to be a strong autonomous organization, one that prides itself on its action-oriented projects, many of which have emerged from community-defined needs. Over the past fifteen years, ESCOW has formulated and implemented its own policies and programs. During this period, training activities and projects have been carried out with women and women's groups in the following areas:

- | | |
|-----------------------|-------------------------------------|
| - Social Action | - Awareness and political education |
| - Primary Health Care | - Agriculture |
| - Nutrition | - Communications |
| - Adult Education | - Literacy training |
| - Income generation | - Sewing |

Unlike most Provincial Councils of Women, ESCOW has full-time staff. In addition to a paid Community Liaison Officer and a number of committed part-time staff and volunteers, there are four full-time seconded government staff persons from the provincial departments of Information, Home Affairs and Youth, Primary Industry (Agriculture) and Commerce. ESCOW staff are exceptionally well-informed and they have become important leaders in the women and development field in PNG. Perhaps as a result of this, the organization has been successful in generating funds and political

support for its projects from both government and international organizations. ESCOW is also an expert at stretching its funds through the effective use of volunteers and seconded staff—despite a full plate of activities and a new province-wide literacy program that is currently getting underway, the organization's cash budget for 1991 is less than US \$60,000.

ESCOW has successfully constructed Women's Resource Centers in each of the four districts where its training activities are undertaken, and the long-term plan is to employ or secure seconded staff to coordinate activities in each of the centers. At present, only one of the centers has paid staff; the others are run by local volunteers.

ESCOW approach is to work cooperatively with all women's groups and NGOs throughout the province, acting as a coordinating body and providing supplementary resources to all interested groups. While ESCOW promotes the formation of women's groups through mass media and face-to-face activities, it does not form groups nor does it claim any individual groups as its own. This posture has obviously facilitated the growth of the organization and allowed it to be seen by other organizations in the province as an ally, instead of as a competitor. Competition between the various women's organizations and churches is mentioned frequently in PNG as a deterrent to the coordination and the growth of women's activities.

From the perspective of maternal health, one of ESCOW's most interesting programs is the Marasen Meri program, which was started almost a decade ago in the Maprik district of the province. This innovative program is described below.

2. The Marasen Meri Project (Medicine Woman), East Sepik Province

The Marasen Meri project in Maprik District was initiated in 1983, with the joint participation of the ESCOW and the Provincial Health Office; an expatriate volunteer working at the Maprik Health Centre is credited with bringing these two groups together. The Marasen Meri program follows a traditional primary health care strategy. Women volunteers are selected with the assistance of the Women's Coordinator for Maprik District and, in each village, a Village Health Committee is also formed.

Marasen meri are trained by the health staff in Maprik during a two week course and given an initial stock of medicines at that time. They are supervised and provided with on-going supplies by their aidpost, subcentre or the Maprik Health Centre, whichever is nearest to them. The East Sepik Council's District Women's Coordinator also meets with the Marasen Meri periodically for this and other program reasons.

The Marasen Meri's function is to act as an extension of the aidpost, providing first aid for minor injuries and treatment for the most common illnesses found

in villages: skin diseases, diarrhea, malaria, fever, colds and flu. Apparently, the Marasen Meri is not expected to be a health education agent in her community, although this is a role that could certainly be explored. She is a pure volunteer, with no compensation and her services are free. A similar type of male volunteer, the Village Health Aide, has also been trained in some areas. And, perhaps because of the atmosphere created by the project, other types of health training have also been conducted for women; a number of years ago several women were trained to attend births and more recently, the Family Planning Association introduced a community-based distribution program in which both women and men were trained as contraceptive distributors.

This is the only project that we heard about during our visit, except for the Village Birth Attendant programs, that has focused exclusively on training women as health workers at the village level. It is also unique in that we found a high degree of understanding of the project's strategy, and what seemed to be pride in its existence, not only in Maprik but also in the Provincial Health Office in Wewak. As a pilot project that was started many year's ago and one that has not received much outside assistance, we found this level of interest to be remarkable.

Since we were looking for examples of women's organizations working in health, we were doubly pleased to note that the East Sepik Women's Council has established a good working relationship with the Provincial and district health officers. However, we were also concerned by one thing. At the time of this visit the Provincial Health Office was ready to embark upon a new VDC and village health aid training program in Angoram district. And, despite the health office's positive experience with the Marasen Meri project, when we asked about the new area, we were told that very few women had been selected for training; only 2 of 14 candidates were women. We were told that this was because the VDC's had been asked to select the candidates and they had chosen men. The ESCOW attributes this problem to the fact that the Health Office is not working with them or other local women's groups to develop the VDC program.

The selection of male over female health worker candidates is, in fact, a very familiar pattern where VDC's are given the opportunity to select either a male or a female candidate. Because men are more likely to be literate, mobile, and assertive, they are therefore easier to identify and to train. In fact, it can be a real problem to find an appropriate woman whose husband or family will allow her to do such work, and/or to travel to attend health training. However, if primary health care goals are related to women's and newborn's survival, then the extra effort should be made to identify and train women for the simple reason that only women can talk to other women about pregnancy and childbirth. While the training of male health aids will most likely guarantee improved immunization, water and sanitation activities, it will have little effect on women's health improvement.

Before any decisions are made about its expansion or replication, East Sepik's Marasen Meri program should be evaluated in a more systematic manner. Even before such an evaluation, however, the project has demonstrated two important things:

- o Illiterate, village-level women can be successfully recruited and trained as primary health care agents;
- o There is a viable role for a local women's association or council in the planning of such training, the orientation of the communities and VDCs, the selection of appropriate women for training and in their support and supervision.

The success of the East Sepik Council is encouraging and the model that has evolved in this exceptional province is one that should be shared and replicated wherever possible. It leads us to believe that with the support of the provincial government officers, and resources for activities and projects, Provincial Women's Councils can find an important niche for themselves in the development process. While a health project, like the Marasen Meri project, could be a mechanism for strengthening a Provincial Council, the administrative and technical structure of such a project would have to be thought through carefully before committing funding.

3. The Women's Training Package, Women's Division, Department of Home Affairs and Youth

This project is being carried out by the Women's Division of the national Department of Home Affairs and Youth, with funding from UNFPA and technical assistance from Food For the Hungry/Australia. The Training Package has been developed over the last four years and currently consists of:

- a. Challenges, Changes and Choices, Women in Development in Papua New Guinea: Part 1 Issues and Information: This is handbook of key facts about women's health, status and participation in development programs. The content of the women's health section follows that of The Health of Women in Papua New Guinea, with an interesting format and collection of pictures that makes it very usable as a reference by non-statistically or medically-oriented persons.
- b. Challenges, Changes and Choices, Women in Development in Papua New Guinea: Part 2: Resource Guide for Organization and Action. This is a draft manual of ideas for action projects and community level activities including general information on organizing workshops, discussion sessions, and suggestions for special international and national days (World Food Day, Women's Health Day, etc.). While packed full of interesting ideas, the manual seems to be geared to a relatively high level

of professional, as there are few tools or instructions for carrying out the activities suggested.

- c. Posters: This set of large, colored photos accompanies the handbook and is to be used in training courses and with discussion groups.

In April 1991, the Women's Division started conducting regional orientation and training workshops for provincial trainers: one from the each provincial office of Home Affairs and Youth, usually the Women's Officer, and one from a non-governmental organization, specifically one working with women's activities. The concept behind this training is that provincial trainers will conduct second-generation training programs in their own provinces for other governmental and non-governmental officers who are either working with women at the community level, or who could do so.

Unfortunately, it was not clear from our meeting with the Women's Division what their goals are for the Training Package's use in the provinces. It was also unclear whether funding would be made available to the provinces for the second generation training activities that should follow the training of provincial trainers. In other words, what incentive or support is there that will guarantee that provincial trainers use these materials?

A good start has been made with the development of these training materials and, with further development and perhaps a follow-on project, the Package could fill a very real need for both program direction and training materials. A set of simple training modules on delineated maternal health topics would be a useful addition to the Women's Training Package. In its present form, the Training Package is almost too complete in the sense that an inexperienced trainer runs the risk of being overwhelmed with the sheer quantity of material. User-friendly modules might cover safe childbirth techniques, nutrition and self-care during pregnancy and lactation, child-spacing/family planning, newborn care and breastfeeding, STDs, and/or other women's health problems. To be useful, modules would have to be simple and each modules would include a course outline and the tools and materials needed to conduct training or other types of activities with community groups.⁵

4. Provincial Women's Coordinating Committees

The concept for the Provincial Women's Coordinating Committee appears to be a relatively recent one that is being promoted from national to provincial levels. We met with one of these committees which had been formed relatively recently in West Sepik Province. Such committees are established at the provincial level with women's

⁵ We apologize for making suggestions without having a complete picture of this interesting project. It is very possible that the project's designers already have this step in mind.

council, church and government representatives from the various sectors. The purpose of such a committee is to make more efficient use of scarce resources by coordinating activities that are directed towards women, and those that will in some way have an impact on women. While this is a creative way in which the women's organizations (council and division) are working in coordination with the government agencies, in reality, the concept is very new and it does not yet seem to be very well understood by the committee members themselves.

5. BEST, Inc.

BEST is a small non-profit association based in Madang which specializes in integrated rural small business and community development education. BEST was initiated by the Canadian volunteer placement agency, CUSO, to provide ongoing consulting and technical support to projects within CUSO's Community-Based Production and Marketing Programme. Currently, the priority areas of concentration for the agency are women's development activities and support to small rural businesses. BEST has a professional staff of three CUSO volunteers and one host-country national.

BEST's "Focus on Women Programme" evolved from the realization that women's contributions to development are not recognized. The program promotes the equitable participation of women in community development by raising awareness, building confidence and improving communication skills. BEST staff feel that until women are aware of their social, political and economic situation and until they gain greater self-esteem and improved communication skills (on a personal and public level), they will continue to be restricted to a lower status in society.

Through non-formal education, BEST staff assist women to recognize obstacles to their development and assists them to overcome these constraints through its workshops and seminars which are held to provide support, encouragement and training. Through this program BEST staff work to raise awareness and confidence and to improve communication and business skills.

BEST could be an important resource in the future for the development of training and educational activities, as well as business training for women's groups.

C. OTHER PROGRAM OPPORTUNITIES AND RESOURCES FOR WOMEN'S HEALTH IMPROVEMENT

1. Youth Division, Department of Home Affairs and Youth

The Youth Division, like the Women's Division, falls under the Department of Home Affairs and Youth at the national level, and under its equivalent division at the provincial level. Like Provincial Women's Officers, Youth Officers are also forced to work without district level staff, however, they do have natural contacts through schools and churches and, as men, they undoubtedly enjoy greater mobility than their female colleagues. Perhaps because of this, Youth Officers appeared to have been active in many of the areas visited by the Assessment Team.

The age groups covered by Youth programs include young men and women from 15 to 25 years of age, making Youth activities a potentially important vehicle for educating young adults about their future reproductive health, as well as about infant and child health. At the district level, sports are very popular and many youths of both genders are said to take part in sports activities on a regular basis. Sewing and gardening are other activities mentioned as those in which youth are involved. From our brief discussions with Youth Officers in the provinces, it appears that health education has not been included as one of their program areas.

It was suggested by a number of individuals that conducting focused educational programs on maternal and/or reproductive health through the Youth Division could be an effective way to reach young men and women at an age when health beliefs and behaviors are still not yet firmly established. Unfortunately, it was not possible during the present assessment to investigate this possibility in greater detail due to lack of time.

2. National Literacy Program

In every area where women's groups were interviewed, women spontaneously expressed their interest in literacy training. In becoming literate, women not only raise their own status in their homes and communities, they also gain greater access to information, broaden their view of the world and feel in more control of their lives (which impinges on their ability to make informed decisions about health care).

Although relatively new, the National Literacy Program appears to be very active; training course materials have been developed and are being made available to organizations and individuals who are willing to conduct village or community-level training programs. Training for literacy trainers is also being conducted in all of the provinces.

Besides being a vehicle for health education messages, the literacy program is an example of the type of national or provincial support project that could be a model for other types of community-level, educational interventions. By developing a program, producing and making the necessary materials available, and offering training in their use to those who are already working in the villages, this program has generated a great deal of interest and, at least initially, it seems to be generating activity where it matters most--in the villages of PNG.

While we were told that the literacy package includes health education messages, again because of the lack of time for this assessment, we were not able to meet with the national authorities on this topic nor to review the materials in any depth. If they do not include maternal or reproductive health messages, these could presumably be added by developing and adding a companion module to the existing set of materials.

III. CONCLUSIONS AND SUGGESTED ACTIVITIES

A. PRIORITIES FOR INTERVENTION

The long list of factors that are thought to be directly or indirectly associated with maternal and neonatal death could be translated into an over-whelming list of interventions. Time and resource limitations require, however, that this list be prioritized according to the relative importance of each of these factors and the feasibility of mounting interventions that address them. Our analysis of the maternal health situation indicates that the following programmatic goals for USAID, CSSP and MotherCare assistance should be further explored:

1. **Determine the relative importance of the many environmental, behavioral and health service factors that are associated with maternal and early infant deaths, in order to prioritize these factors for intervention.**

At present, efforts to improve the survival of women and their infants are handicapped by a lack of information about the relative importance of the many factors that contribute to their deaths.

As mentioned earlier in this report, an estimated 90% of the total maternal and early infant deaths each year go unreported and very little is known about their immediate causes. And, even the deaths that are reported are not being investigated to any degree of detail; for the most part, determinations of cause of death and identification of possible predictive factors have been carried out through the review of incomplete patient charts and death report forms. While they give some indication of the ultimate clinical causes of death, unfortunately these instruments include very little information to improve our understanding of what else might be involved and most importantly about **what happens???** at the individual, community and health service levels in the face of life-threatening problems, and **why???**

While there have been numerous studies of the conditions which are known to have a negative effect on pregnancy outcome (malaria, anemia, STDs, undernutrition, etc.), we found only one study that compared the effects of more than one of these conditions during pregnancy (malaria, anemia, parity) on an outcome variable (hemoglobin status of mother and newborn). In a similar vein, the substantial amount of information on cultural beliefs and practices during pregnancy and childbirth does not adequately connect the prevalence of specific behavioral factors to pregnancy-related death or illness. The country-wide anthropological study proposed by CSSP will provide a wealth of useful information about reproductive health attitudes and practices. As described, however, it will not focus any specific attention on "negative" outcomes, i.e.

beliefs and practices of those families that have experienced a death. We believe that adding such a focus or conducting another study simultaneously to explore the factors related to negative maternal and perinatal (maternal and infant) outcomes would be worthwhile.

2. Reduce the numbers of pregnancies in high risk women through family planning programs.

In a country like Papua New Guinea, with its high total fertility, low contraceptive use and lack of family planning services, one of the most cost-effective methods for reducing high maternal and infant mortality rates would certainly be to increase family planning acceptance. Reducing the numbers of pregnancies to older, high parity and young, unmarried women—those at greatest risk of poor pregnancy outcomes—by definition reduces their risk of pregnancy-related death. The planned family planning programs, if they are successful, will by themselves have a significant impact on maternal mortality and morbidity. Since these programs are already planned and well-supported, we make no further recommendations except to encourage coordination and integration with other women's health activities whenever possible.

3. Prevent life-threatening obstetrical and neonatal complications (primary prevention) through interventions that:

- * **increase the practice of "safe childbirth" techniques during home births, and decrease negative or dangerous practices;**
- * **increase the adoption of protective antenatal and postnatal behaviors, including improved maternal nutrition, increased utilization of antenatal care, compliance with prophylactic iron and chloroquine therapy, increased immediate and exclusive breastfeeding, and increased family planning acceptance.**

As long as home birth is practiced in PNG, and we assume that it will be for many years to come, efforts will be necessary both to prevent problems and to speed the appropriate reaction of birth attendants and families to them when they occur. It should be possible to prevent at least some of the obstetrical and postpartum complications caused by dangerous practices during pregnancy, delivery or the postpartum period. In PNG, potentially dangerous practices may include the mismanagement of labor (e.g. encouraging a woman to begin pushing much before this is appropriate, which can lead to exhaustion, cervical swelling and a difficult or obstructed delivery), use of contaminated materials in the birth area, and other practices that increase the risk of infection or trauma for a woman and/or her infant. Such practices are usually the result of inadequate knowledge, long-held cultural beliefs and/or the inappropriate adoption of western medical

practices. In at least some measure, they should be amenable to change through training and communications programs that seek to inform both men and women about maternal and reproductive health topics.

4. **Prevent death from life-threatening obstetrical and neonatal conditions when they occur (secondary prevention), through interventions that:**
- * **improve the frequency and the quality of MCH care in rural areas, including the counseling and referral of clients with problems;**
 - * **increase the recognition at the family and community levels of the danger signs for women and neonates;**
 - * **reduce delays in the appropriate response at all levels--community to referral hospital--to these life-threatening problems.**

In theory, a number of obstetrical complications and factors associated with negative outcomes can also be detected during the prenatal period and action taken to reduce the possibility that a woman or her infant will die from them. These include placenta previa, malpresentation, cephalo-pelvic disproportion, pre-eclampsia, severe anemia and low weight gain. Grand multiparous women and young adolescent women are also known to be at higher risk of complications during pregnancy and birth and should receive special counseling and supervision.

Improving the frequency, quality and acceptability of antenatal care could be an effective way of identifying women with the signs or the known probability of developing obstetrical complications. If as a result of such antenatal screening, more women with the early signs of problems are managed appropriately and when necessary referred to higher levels of care for delivery, then maternal, and perinatal mortality will most certainly decrease.

While antenatal screening is useful for detecting women who have a problem at the time of a visit, the current body of literature suggests that many of the traditional "risk factors" and risk scoring systems are not specific enough to pinpoint women who will have life-threatening problems with an acceptable degree of accuracy. It is particularly important to keep in mind that a certain percentage of women--even those who are classified as low-risk--will unexpectedly develop complications either during pregnancy, delivery or the postpartum period. (Rook 1990, Moutquin, et.al. 1990) This is also true of seemingly healthy neonates (Bartlett 1991). Prolonged or obstructed labors, eclampsia, abruptio placenta, retained placenta, and postpartum hemorrhage--a major killer of women in most developing countries--and neonatal infections are conditions that are not always predictable, even under the best of circumstances.

Again, providing information and education to men and women at the community level about the danger signs to watch for in women and neonates, and about the appropriate actions to take when these occur, should help to improve their response to serious problems. Special community mobilization to overcome blood taboos and compensation requirements in cases where transfer of women during labor is necessary, may also be required. While blood-related beliefs and customs are strong, there is no reason to believe that communities could not be convinced to take necessary actions in emergency cases, particularly if they are encouraged to come up with their own solutions. Geographic barriers to care will be more difficult to address but, as mentioned earlier, PNG is in some ways better equipped than most developing countries to move emergency cases from even the most remote locations to referral facilities.

5. Improve women's status and their access to information and services related to their own reproductive health and the health of their infants, through interventions that:

- * are designed to benefit women directly;
- * increase the number of village-level women who are trained in health-related topics and programs;
- * increase men's understanding of reproductive health and their active support of women's health and development;
- * increase the support of community leaders for women's health and development activities.

An undetermined number of the conditions that kill women and neonates could most certainly be prevented, or their effects lessened, by addressing the underlying causes of poor health, including the low educational level and status of women in society; unequal food distribution patterns within families; and mistreatment of women. In general, long-term interventions are required to show demonstrable reductions in these conditions: interventions that often require multi-sectoral involvement and long-term commitments. While these long-term efforts must be started, short-term project, too, can incorporate women's concerns and status as their priorities.

Since men control economic, political and social life in most of PNG, it will be very difficult to improve the health of women or to raise women's status without support from the men. To assure that women can take part in development and health activities, husbands, fathers and brothers must be supportive; to be supportive, they must understand the value of women in society, how women's

roles must change and how those changes will benefit their families. Because of male separation from all aspects of menstruation, birth and postpartum care, men are said to be largely ignorant of even the most basic facts. It is not difficult to understand why, under such circumstances, men fail to take action in emergencies or to support their wives during pregnancy. Given the traditional bride-price and the male attitude that his wife is his property to treat, or mistreat, as he sees fit, changes in male attitudes will be difficult. But perhaps through education and peer pressure, and advocacy for women at every level of the society, male attitudes will change.

One of our hosts during this trip told us about a way that his organization had begun to talk to men about their changing roles and the frustrations that these changes had engendered. His story seemed a good one to demonstrate how men might be more productively involved in their family's welfare.

"In the past, men hunted for food and, as warriors, they protected their lands and families against encroaching tribes. As society has changed and warfare has been discarded as an acceptable way to settle disputes, men have lost their traditional function of providing physical protection. In losing this role, they have found little to replace it and many have grown increasingly idle and some have become hostile towards society. In our discussions with men in the villages where we are working, we talk to them about other types of protection that they could, and should, provide for their families, i.e. protection of their wife's health during pregnancy, protection of their children's health and future." (paraphrased from discussion with World Vision staff members in Madang)

This creative approach to addressing male concerns and to meeting their needs for support and information could be further developed and combined with efforts to inform women.

Community involvement and commitment can also be an important force for improving women's health status and birth outcomes. In maternal health programs in other countries, community's have taken steps to establish their own emergency transport and communications systems, contributing or raising funds to help families that cannot afford the costs for such transportation. In PNG, we heard stories of communities that had built community birthing huts where women could go to have their babies with a trained health worker or village birth attendant. Convincing community leaders to support women's activities and women's development could be one of the most important steps towards improving maternal and neonatal health. Village Development Committees (VDCs) could do a great deal to assure that women receive antenatal care, delivery services, the correct foods, family planning information and contraceptives, tetanus toxoid immunization and all the other health interventions

for which women need extra encouragement and support.

6. **Prevent the spread of AIDs and reduce the negative effects of other STDs by increasing their detection in pregnant women and their treatment of women and their contacts. Prevent ophthalmia neonatorum by prophylactic eye treatment in the newborn.**

Gonorrhoea and syphilis can have a profoundly negative effect on the survival and the well-being of women and infants; and, despite detection and treatment efforts, high rates of these STDs continue in PNG. According to the experts, AIDS will soon be a serious problem, as well. While women undoubtedly suffer from STDs at rates similar to men, according to the statistics they are much less likely to be detected and treated than their husbands. Special efforts are needed to increase the number of women treated for these diseases during pregnancy. At the same time, we know that it is not enough to detect and treat a woman without treating her partner simultaneously--this is perhaps the most difficult step in the process. Clearly, while the government's efforts to improve the coverage and the quality of STD services will have a major impact on the current situation, new strategies for reaching men and women with information about the dangers of STDs are also warranted.

As one of the most serious consequences of maternal gonorrhoea is blindness in the newborn, efforts should be made to introduce routine prophylaxis with silver nitrate drops or tetracycline ointment in newborns' eyes as part of the birthing process at attended deliveries.

B. SUGGESTED ACTIVITIES FOR MOTHERCARE, CSSP AND USAID CONSIDERATION

The following sections briefly describe activities that might be developed to address the goals defined above.

1. Case Investigation of Maternal and Perinatal Deaths

A rapid community-level study is proposed to help determine the relationship of environmental, behavioral and health service factors to actual maternal and infant death. This would be a qualitative study in three or four regions of the country, incorporating elements of the verbal autopsy and process diagnosis techniques used by MotherCare in other settings. Section ____, Proposal A describes this study in greater detail. The study would be conducted by CSSP Medical Anthropologist, Dr. Carol Jenkins, and the Institute for Medical Research, with financial assistance from both the CSSP and MotherCare.

2. Reaching Rural Women and Men with Maternal Health Information - A Demonstration Project

A demonstration project to test the feasibility of disseminating maternal health information through non-governmental agencies that are already working with village groups is also proposed. This project would be developed and implemented at the provincial level, with the active participation of the Provincial Women's Officer, the Provincial Women's Council members, church and other non-governmental organizations. Project inputs would include the development of health education materials, training modules and training courses on high priority reproductive health topics. Training and materials would be made available to the extension workers of all participating organizations in the province, who would in turn conduct training sessions with community groups. The objectives and possible strategy for such a project are presented in Section IV, Proposal B. This demonstration project would be jointly supported by the CSSP (local implementation costs), MotherCare (local coordinator and technical assistance) and the participating provincial governments (seconded staff and contributions for transportation).

3. Training in Management for Women's Organizations

Training in project development and management is recommended for 3-4 Provincial Women's Officers and Women's Council Representatives from those provinces that are chosen to participate in the demonstration project. Such training is provided several times each year in Washington by CEDPA (a MotherCare subcontractor), and follow-up training courses are often arranged in-country with CEDPA assistance. There are also other Women-in-Development training courses that could be investigated. At least partial funding for training participants might be included in the demonstration project budget. In the case that CEDPA training is chosen, CEDPA would be willing to seek matching funding from its other sources for PNG participants.

4. MotherCare Collaboration with the STD/AIDS Project

MotherCare is currently developing an STD subproject with AID Washington which focuses on increasing syphilis detection and treatment during pregnancy. While there are probably areas of mutual interest to MotherCare and the Department of Health's STD/AIDS program, this brief visit was not sufficient to determine what they might be. Given the STD/AIDS program's extensive experience with the implementation of detection and control efforts, it is proposed that MotherCare invite the Department of Health to participate in the STD/syphilis workshop which will be held in Washington, D.C. in early November 1991. The travel and per diem costs for the Department of Health's participant would be covered by MotherCare. Any future MotherCare assistance to or collaboration with the STD/AIDS project could be discussed during this meeting.

5. Recommended CSSP Technical Assistance to Provincial Health Offices

There are a number of areas related to improved maternal and neonatal health services in which Provincial Officers might request assistance from the CSSP, and others in which CSSP might wish to offer assistance. These include:

- * Analysis of the quantity and quality of maternal health care provided on mobile patrols and in static clinics. This would include estimates of the actual population coverage of MCH patrols and static clinics, as well as the allocation of available resources for MCH services.
- * Operations research to test alternative strategies for extending essential MCH services to the rural areas, for improving the maternal health content of these services, and for making these services more acceptable and consequently accessible to rural women.
- * Encouraging all efforts to select and train women as health providers in rural areas.
- * Operations research to explore culturally-acceptable and more effective roles for male health providers in reproductive health care. The study of postpartum administration of ergometrine by APOs, as proposed by CSSP Medical Advisor, Dr. Keith Edwards, would be such an attempt to involve the existing male workers in a potentially important childbirth intervention. Training male APOs to promote and teach men about maternal health and family planning might also be a potentially acceptable and useful role for this cadre of worker.

6. Child Survival Support Project Assistance to the MotherCare Project

Besides those project ideas mentioned above which would include MotherCare and CSSP inputs, several interesting ideas for studies and projects are being discussed or planned by the CSSP team. While MotherCare's direct input is not required in these projects, it would benefit MotherCare to know about and be involved to the extent desirable and feasible in the development of these efforts. At the very least, we would be interested in copies of all CSSP proposals and reports related to maternal and neonatal health activities and studies. Those studies that are currently planned by CSSP which are of special interest to MotherCare are:

- * The ethnographic research on reproductive health beliefs and practices, to be conducted by Dr. Jenkins beginning in September or October 1991.
- * The guidelines for Village Birth Attendant training programs, developed as a result of the seminar conducted by CSSP and the Department of

Health in April, and the report of that seminar.

- * The proposed project to train APOs to administer oxytocin postpartum, to prevent/treat postpartum hemorrhage.

The possibility of using CSSP staff members as MotherCare consultants in other developing countries is also proposed, if this is acceptable to them and to the USAID Mission, and they have the time available. Dr. Jenkins, Ms. Margaret Street and Dr. Keith Edwards, in particular, have a wealth of experience that could be very useful in other settings.

C. POLICY-LEVEL ENVIRONMENT FOR MATERNAL AND NEONATAL HEALTH INTERVENTION

It would frankly be difficult to imagine a more appropriate time to be addressing maternal health issues in PNG. With the publication of Joy Gillett's book in 1990, and the Waigani Seminar in June which focused on maternal health, the issues of women's health and development are in the news and on the tongues of government bureaucrats and politicians. Simultaneously, there seems to be a commitment at the national level, as documented in the 1991-95 Health Plan, to improving existing maternal and reproductive health services.

Unfortunately, as has been well-documented, the national level has little influence over what happens in the provinces and it's not at all clear that the provincial authorities place as high a priority on improving maternal health services and women's activities as the current media coverage would lead one to believe. Faced with their own budgetary problems and local priorities, it is safe to predict that the current rhetoric will not be translated into actual activities unless outside donor agencies direct their attention and resources towards women's health and development.

**IV. PROPOSALS FOR MOTHERCARE, CSSP AND
USAID CONSIDERATION**

A.

PROPOSAL: CASE INVESTIGATION OF MATERNAL AND PERINATAL DEATHS

Purpose

The purpose of this community-level study would be to collect information on the environmental, behavioral and health service factors related to maternal and perinatal deaths. Information from this rapid study could be used to prioritize these factors for intervention, as well as to stimulate interest, discussion and action at policy and community levels.

Methodology

There are any number of research techniques that might be used for this type of study. MotherCare has found one technique—the retrospective investigation of deaths through in-depth interviews with family members—to be highly effective for pinpointing deficiencies at family, community and health service levels. Working backwards from the death, an interview schedule is used which combines elements of the standard verbal autopsy with an investigation of birth practices and of the family's perceptions and behaviors when faced with a life-threatening event or illness. This in-depth interview schedule can be used effectively with case-control and case study research designs, depending on the level of resources available and the intended use of the study results.

To date, MotherCare has worked with investigators in Guatemala, Bolivia, Haiti and Bangladesh on similar studies and we have found the mortality case investigation to be a very effective diagnostic tool no matter what the research design. Besides providing important data on cause of death in the community, the resulting case studies seem to give almost immediate focus to prenatal, perinatal and neonatal health interventions. This is because they focus attention on points in the decision-making process at which families and health providers fail to take actions that could prevent death and they help to identify the barriers faced when attempting to take such action. These are, of course, also the points at which interventions are likely to be the most effective.

A prerequisite for a case investigation of any type is knowing the whereabouts of families that have experienced a maternal or perinatal death within a given time period. For a case-control study, one must also know the location of births or pregnancies with positive outcomes and be able to gain access to both case and control families. Either prospective or retrospective identification of cases is appropriate, however, a cut-off of twelve months from the time of the death to the interview is recommended to reduce recall bias.

There are several longitudinal study sites in PNG where vital events (birth and death) information is being collected on a population basis. These include three IMR surveillance sites, one at Tari District (highlands) in Southern Highlands Province, one in Wosera District (lowlands), East Sepik Province, and the last in the fringe lowlands. While the surveillance population sizes will determine the numbers of deaths expected, in all of these areas it should be relatively easy to pinpoint families that have experienced deaths within the past year, by the age and the sex of the deceased.

The number of interviews to be conducted overall and in each site would depend on the ultimate use of the information to be collected. It should be kept in mind that this is not intended to be a statistically representative study and that qualitative, not quantitative, information will be produced. A quick, inexpensive study would require a small sample which might include a minimum number of cases related to each of the top three known killers of women and neonates. This type of study would illicit rich descriptive data on a case-by-case basis which should help to explain the relationships of specific variables to deaths. While not representative of the population at large, this "case-study" approach produces powerful real-life information (versus statistical information which can be dry and lifeless) that can be used at a policy level, as well as by planners to determine the content and the objectives of program interventions.

Implementation

Considering the research capability of the IMR, CSSP's anthropologist Dr. Carol Jenkins, and CSSP's Medical Advisor, Dr. Keith Edwards, direct MotherCare technical assistance should not be required to undertake the recommended study. Instead, MotherCare will provide copies of interview schedules, protocols and reports from the studies described above for review and adaptation. MotherCare would be available to provide consultative input if requested by the CSSP. This type of study is relatively quick and inexpensive to conduct.

Presentation and Use of Findings

The results of this type of study have been used in other settings to produce a number of different types of products for policy and program use. Given the particular needs of PNG, such products might include:

1. A technical report directed towards medical professionals, researchers and program planners.
2. Case studies that could be used in discussion groups and training programs; this series would describe actual maternal deaths to illustrate specific problems, including:
 - a. too many poorly spaced births/maternal depletion,

- b. a family's or woman's delay in seeking medical attention when a serious problem occurs,
 - c. physical abuse leading to a woman's death,
 - d. pregnancy and birth practices that have a negative effect on maternal and infant survival.
3. Radio scripts and sample radio programs using the case studies as the central themes could be produced and distributed to local radio stations, health educators, and women's councils for adaptation and broadcast in local languages.

B.

PROPOSAL: REACHING RURAL WOMEN AND MEN WITH HEALTH INFORMATION - A DEMONSTRATION PROJECT

Project Purpose

This project would develop and offer health education materials, training modules and training courses on high priority maternal and neonatal health topics to organizations and associations that are working with community level groups, particularly women's groups. The objectives and possible strategy are presented below for discussion.

Objectives

1. Demonstrate the effectiveness of working through voluntary organizations, churches and other governmental agencies that have activities with women at the community level, to reach village women with information and to introduce health-protective behaviors including the use of available health services.
2. Increase community (men and women) awareness of the problem of maternal health, the circumstances leading to maternal and early infant death, and the individual and community-level actions to prevent these unnecessary deaths.

Rationale

The need for this type of project is based on the inability of the current health system to reach village women with basic information about pregnancy, childbirth and the primary health services that are intended for their use. As mentioned earlier, there is a pressing need throughout the country to reach both women and men with this information and to do it in their own languages and preferably in their own communities. While this task currently lies with the Provincial Departments of Health, and Social or Community Development, for reasons of budget, workload and the inability of the predominantly male health workers to talk to women about reproductive health topics, alternative channels for village level communications with women should be tested. Under the proposed project, such an alternative channel would be developed, with the active participation of the health and social welfare sectors in one or more provinces.

In many countries of Latin America, Africa and Asia, community-level, women's groups have proven to be an important vehicle for the transfer of health

information. Participation in organized groups is also thought to improve women's self-esteem and, thus, their ability to act to protect their own health and the health of their families. Whether formed expressly for the purpose of a health activity or around an income-generation or self-improvement goal, women's groups often identify health concerns as their priorities and they have demonstrated time and again that they are most willing to take action to address these problems. With similar information and awareness about their own health needs, it is logical to expect that women in PNG will be more likely to change existing practices that are potentially harmful to themselves and their infants and to seek modern health services when the need arises. The importance of reaching men and community leaders with similar messages has already been discussed.

Strategy

If the goal is to reduce maternal and neonatal mortality by improving women's and men's knowledge of safe birth techniques, danger signs during pregnancy, birth and postpartum, and the need for medical attention when these occur, then new ways for reaching communities with this information must be developed. The proposed project would be developed and implemented through one or more organizations (governmental and non-governmental) that are already working with groups of women and men in rural communities, including those that work with church groups, youth groups, village development committees and women's groups. In this way, it will take advantage of the existing contacts and personnel of these agencies and eliminate the need for increasing the numbers of extension workers in any one agency. There is every indication that this type of umbrella project and technical support would be welcomed by local agencies who often lack the technical staff and/or the time to add new programs or development activities.

Through the project, participating organizations will be offered a set of women's health education modules on priority topics and a training of trainers course for staff members who are currently involved with community groups. In turn, participating organizations will agree to conduct health training courses in a minimum number of communities. While the project will focus on training for women's groups, organizations will also be encouraged to conduct simultaneous courses for men's groups and youth groups, with content adapted for this purpose. Participating organization will be required to keep simple records of the numbers of community training sessions held, the topics of each of the sessions and the number of women, and men that attend.

Project staff will assist the participating organizations to conduct community level courses, if requested, and they will visit a selected number of communities prior to and during the six to twelve months following the Training of Trainers course.

This project should be seen as an additional village-directed resource by

all potential participating organizations. If it is not, or if it is perceived to be competing or attempting to undermine the influence of the participating agencies, it will surely fail.

Project Management

It is recommended that this demonstration project be implemented simultaneously in at least two provinces. In each province one or more non-governmental organizations would be selected on the basis of interest and administrative capability, to administer and take responsibility for the provincial coordination of project activities. The implementing organization might be the Provincial Women's Council, one of the principal churches in the province, or a private voluntary organization. The implementing organizations would be selected during the planning phase of the project.

Criteria for selection of provinces for this demonstration project would include:

- * a large number of rural women's groups with relatively strong district and provincial associations to support them;
- * at least three non-governmental organizations working with women's groups that are interested in and willing to commit staff and resources to implementation of the project, i.e. carrying out training at the community level using project materials;
- * the support of the Provincial Secretary;
- * the willingness of Assistant Secretaries for health and social development to second staff to the project implementing committee;
- * one NGO that is willing and judged to have the capability to administer and take ultimate responsibility for project funding and for the coordination of project activities.

Provincial health and social development officers should be involved in the project because of their interest in and mandate to work with VDCs, local health workers, women, youth and churches. (It is only due to their lack of control over provincial resources that we would recommend against funding the project directly through one of these government agencies.) As a prerequisite to selection of a province, the Provincial Secretary and Assistant Secretaries will be asked to assign specific individuals to a Project Implementation Committee and to commit a fixed amount of their time to the project. There is already a precedent for this in several provinces, so as long as requests are clear, with tasks and time commitments spelled out, it is anticipated that local authorities will agree.

All organizations with community activities will be contacted and invited to participate in the project. Organizations will be given the option of assigning staff to participate on the Project Implementation Committee, however, it will be made clear that

all Committee members will be expected to give a fixed amount of their time to the project's development and implementation.

Paid project staff will include a Project Manager, and in each province a Provincial Coordinator and a Secretary/Administrator. All other technical and administrative resource persons will be provided by the provincial health and social development offices and by the participating organizations. Volunteer assistance will also be welcomed.

Description of Project Activities

a. Project Development (6 months)

The planning phase will require feasibility studies in a number of provinces, during which a MotherCare consultant will work with the Project Manager to identify potential participating organizations, and to explain the project's concept and objectives to them and to the key provincial government officers. If sufficient interest is expressed, an implementing organization would then be identified and a subcontract prepared. Participating organizations would also be asked to sign non-binding agreements committing their staff and resources to conducting the community-level training that will be the key to project success.

b. Training Needs Assessment (3 months)

During this phase, the Project Implementation Committee will be formed and it will meet regularly. One of the first requirements will be to get a better idea of the knowledge and the felt needs of women, men and youth in the communities, in relation to women's health. The Implementation Committee will develop a needs assessment tool with the assistance of a MotherCare consultant, and use this with a selected sample of communities. This assessment tool will be kept as simple as possible, with a focus on the key behavioral factors that tend to determine maternal health status and the survival of women and neonates. Development of the assessment tools and the compilation and analysis of assessment data will be conducted in mini-workshops with Provincial Implementation Committees participating.

c. Training Module Development (3 - 6 months/and on-going through project)

Once the needs assessment is complete, the Project Implementation Committees will move to the development of a training plan and materials. In this process, the Women's Training Package, developed by the Women's Division, is expected to be extremely useful. The flip chart being developed by CSSP may also be adopted and used. As much as possible, training materials will be organized in free-standing modules on defined topics, so that they can be used together in a series, or

separately depending on the needs and interests in different communities. Training modules for use with women's groups will be developed first; modules for use with youth and men's groups will also be developed, but probably not until the initial round of training for women has been completed.

The topics and content of the individual training models will reflect the maternal health needs as defined by the existing epidemiological data and by the training needs assessment. In training at the community level, it is very important that materials be kept simple and that they focus on only those issues of greatest importance. The other important point to keep in mind is that training must be highly participatory to meet the needs of the intended learners. Module topics would most certainly include:

- * Safe Childbirth Practices
- * Self-Care and Nutrition During Pregnancy and Lactation
- * Family Planning/Child Spacing
- * Danger Signs of Pregnancy, Childbirth and the PostPartum Period

MotherCare will provide technical assistance during this and the next phase of the project. Analysis of the findings of the needs assessment and the initial design of training modules may be carried out during the same workshop, again with both provincial teams present. Although differences in language and cultures may require individually tailoring modules for each province, bringing teams together for this phase of materials development will allow for cross-fertilization of ideas, and take best advantage of technical assistance inputs.

d. Training Phase 1: Trainers (3 months)

Participating organizations will be asked to nominate women for the Training of Trainers course. Whether these are the staff or the volunteer leaders of the organizations, or whether they are women from the communities themselves will be decided during the planning phase of the project on the basis of input from the various organizations. This training might be one or two weeks in length, depending on the topics to be covered and the level of the trainers and it could be conducted either at the district or the provincial level. The Implementing Committee and invited resource persons would act as trainers. Two Training of Trainers Courses for a total of 60 trainees are anticipated.

e. Training Phase 2: Women's Groups (6 months)

At this stage, the participating organizations would take over responsibility for the second-generation of training, or training of all community group members. Trainers would be those trained in Phase 1, and training sessions would take place at

the village level. A minimum of 30 20 communities will be involved in each province; this could mean as many as 200-300 women trained in each.

Members of the Project Implementation Team will attend as many village level training courses as possible to provide on-site assistance to the participating organizations.

f. Evaluation of Training and Training Modules (3 months)

The training needs assessment will be designed to provide baseline information about trainee knowledge. Following village level training the Implementation Team will visit a sample of the groups trained and, using a shorter version of the assessment checklist, collect post training data on knowledge. In addition, the Project Implementation Team will also be responsible for observing actual training sessions and rating trainers. And, trainers will be asked for their suggestions for changes in the modules based on their experiences in the field.

g. Revision and Production of Training Modules (3 months)

On the basis of their training experience and the findings of the evaluation phase, the Implementation Committee will make revisions in the training modules. Once complete, women's training modules will be produced in sufficient quantities for each of the provinces.

APPENDIX 1: BIBLIOGRAPHY

BIBLIOGRAPHY

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- Alexander and Lloyd,** "Hospital Services Project, Executive Summary." Australia, Dec. 1987. Describes the structure of the PNG health system, the facilities at different levels, and the range of curative services available. This is a hospital oriented study and doesn't analyze preventative programs or address the quality of services provided.
- Alpers, Michael.** "Research Activities of the Papua New Guinea Institute of Medical Research." April, 1989. An overview of the medical research conducted by PNG's principle health research institution. In stating the PNGIMR's research focus, the principle health problems in PNG are presented along with possible interventions.
- Alto, William; Albu, Ruth E.; Garabinu Irabo.** "An Alternative to Unattended Delivery -- A Training Programme for Village Midwives in Papua New Guinea." *Social Science Medical Journal*. Vol. 32, No.5, pp. 613-618, 1991. The outcome of training traditional birth attendants in an isolated rural area of the Southern Highlands where there was previously no cultural role for TBAs is reviewed. The conclusion is that the presence of the TBAs has contributed to the increased number of supervised births and is believed to have contributed to the decreased neonatal and infant mortality of the area.
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- Barss, P. and Blackford, C.,** "Grand Multiparity: Benefits of a Referral Program for Hospital and Postpartum Tubal Ligation." *Papua New Guinea Medical Journal*, March 1985, 28(1):35-9. A study addressing the prevention of maternal morbidity and mortality by increasing the number of grand multiparas delivering in the hospital. The data analyzed is from one district hospital.

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The consultant interviewed individuals involved with the training program at many different levels, and visited not only the training site but a traditional village midwife training center in a village. In her recommendations she noted poor hygienic conditions at the village level and at the training site as well. The recommendations for training course modifications are interesting but according to the NDOH Committee working on the VBA curriculum guide many are not appropriate in the context of training for semi-literate village birth attendants.

Department of Health. "Papua New Guinea National Health Plan 1991 - 1995."

This is the third country plan which presents the national health policy and strategy; national health care statistics; and technical plans in all health sectors.

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Proposal for a TBA project that provides brief but pertinent information on TBAs and the maternal health situation in the Trobriand Islands. The proposal looks to incorporate women's clubs into a TBA project and recognizes the need to consider the clan that the TBA comes from and will serve. An interesting explanation of why women prefer to deliver in their homes is also presented.

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One of the few analyses of maternal health services. This study was conducted at the antenatal clinic of the Port Moresby General Hospital, PNG's only tertiary care center and involved a review of clinic records as well as two indepth open-ended interviews with a sample of women. These urban women were found to be very oriented toward western medicine and almost all delivered in the hospital. The husband's support and advice to attend the clinic was found to be relatively common and significant for the woman's attendance. A well done and important study.

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Project Concern, International/PNG. Documents:

- a. Proposal for the continuation of the Village Birth Attendant Project in Kaiapit District.
- b. Child Survival Survey - copy of survey instrument.
- c. Preliminary Analysis of Baseline CS Survey Data - Sept. 1989.
- d. Data from VBA project in Kaiapit review - breakdown of number of deliveries and types of complications attended by VBAs.

These documents are all pretty much raw data, but (c) and (d) are particularly interesting as few general baseline surveys of this type have been conducted in PNG. (a) provides background as to the design of the VBA project.

Pust, Ronald; Newman, Jeanne; Senf, Janet; and Stotik, Esther. "Factors affecting desired family size among preliterate New Guinea Mothers." International Gynaecology Obstetrics, 1985, 23:413-420. Based on a 1977 survey, making the data somewhat dated. Moreover, the survey design was weak as questions about potential use of family

planning services were poorly understood. The fertility history information, however, is interesting.

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A study in Madang Province that observed nurses' performance in MCH clinics, both hospital based and mobile clinics. Results found nurses to be exceptionally brief, focused on weighing the children, providing minimal nutrition education, and rarely discussing family planning. Also clinic record keeping, nurses' "health talks", and the supervision and support for the nurses are discussed.

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An analysis of anaemia during pregnancy. The study finds infection with hookworm common in pregnant women. Anaemia is positively associated with hookworm infection. There appeared to be no relationship between socioeconomic status and haemoglobin concentration.

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This paper outlines the current activities of TBA programs in six provinces.

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Clear report that presents the current status of the PCI VBA project. Minimal background information on traditional practices in the area but analyzes the future possibilities for the project.

Street, Margaret. "The Status of Women and Their Contribution to National Development in Papua New Guinea - Achievements and Prospects." Draft. April 1991.

Outlines the growth of women and development activities in PNG. Primarily focuses on the structure and function of the National Council of Women.

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This paper describes the cultural and social adaptation of a small East Sepik District population to a swamp forest environment and to establish baseline levels of infant mortality prior to the introduction of regular health services to the area. The implications of the findings are that in the face of high infant mortality expanding aid post and immunization services are extremely important.

Townsend, Patricia K. "Traditional Birth Attendants in PNG: An Interim Report." IASER Discussion Paper, No. 52, PNG Institute of Applied Social and Economic Research, December, 1987.

An extremely important resource on TBAs in PNG. Reviewed all anthropological fieldwork done on childbirth or related topics in PNG, published and unpublished. The study data is based on surveying researchers with PNG field experience and so is all based on secondary data. Possible patterns are suggested but no quantitative analysis done.

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Tremlett, Gill. "Report on Strengthening service delivery and information, education, and communication activities of maternal and child health/family planning programmes." WHO consultancy, (WP)MCH(K)/PNG/MCH/002-E or UNFPA No. PNG/84/PO1, April, 1986. Extremely thorough report on MCH services and village midwife projects. Consultant primarily relied on a literature search, interviews, and observation for this report but her commentary is astute. Few other reports of this scope and size have been done in PNG and the recommendations and improvements are particularly noteworthy. Provides history of midwife projects in PNG not available elsewhere. The annexes review individual midwife training projects and provide very detailed information on each center. Additionally, consultant looked into the feasibility of expanding extant community-based distribution programs for family planning. Particularly relevant parts of the report on midwife projects include:

Annex 3, "Customs, Beliefs, and Practices Relation to Pregnancy and Childbirth in PNG: Implications for Health Services." Critically reviews the cultural context of childbirth in PNG. One of her recommendations is "raising of general knowledge level" in

PNG about pregnancy and childbirth and not to implement national TBA programs.

Annex 5, "Training Village Midwives in Nipa, Southern Highlands Province." WHO Consultancy, Oct. 1985.
Addresses traditional childbirth care in the region and reports on situations encountered by trained midwives.

Annex 6, "Village Midwife Training at Braun Health Center, Finschhafen, Morobe Province, PNG." WHO Consultancy, Oct. 1985.

Very brief report on midwife training but includes details on course content. Minimal information on indigenous practices.

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The report gives basic health data and an overview of UNICEF's program in PNG.

U.S. Department of State. "PNG Post Report, July 1990."

Overview of the country focused on Port Moresby, the capitol. This is geared toward ex-patriots who will be residing in PNG and so the information is oriented towards the social needs of the urban-based expatriate.

Vince, J.D. "Neonatal Care in Perspective: Results of Neonatal Care in Port Moresby." Papua New Guinea Medical Journal. June 1987, 30(2);127-34.

This report reviews neonatal mortality and neonatal care services. Emphasis is placed on the need for basic neonatal care, and prevention of neonatal infections and perinatal hypoxia, rather than expensive and sophisticated neonatal intensive care.

Wells, Marilyn. "Midwifery Services in Madang Province, PNG: A Proposal." Papua New Guinea Medical Journal, 28: 147-153, 1985.
Excellent examination of socio-cultural background of the area and a good analysis of local health problems. The possibility of starting a midwife project in the area and possible design is addressed.

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Discussion of traditional healing among the Ningerum community and its influence on the use of aid posts.

The World Bank. "Papua New Guinea Management, Manpower, Money: A Select Review of Health and Population in Papua New Guinea." Report No. 8959-PNG. Population and Human Resources Operations Division. February 25, 1991.

This report gives a thorough overview and analysis of health and family planning services in PNG. Includes information on the organization, management, financing, quality and planning of health services.

APPENDIX 2: SCOPE OF WORK

**SCOPE OF WORK
MATERNAL HEALTH ASSESSMENT: PAPUA NEW GUINEA**

The MotherCare Assessment Team will work with the CSSP and the Department of Health to:

1. Review the available literature on maternal mortality and morbidity in PNG and the associated cultural, environmental and behavioral factors; incorporate information gleaned from interviews and field work in-country; summarize and assess the quality and completeness of the available information; and, recommend further research on specific topics.
2. Compile information on existing and planned maternal health and nutrition programs and the elements of the health service delivery system addressing maternal health and nutrition needs; identify gaps in the content and coverage of such programs which could be addressed either through the modification of existing programs or through new program efforts.
3. Compile information on community-level resources and programs that are directed towards improving the status of women; assess the potential for working through these channels or mechanisms to improve maternal health and nutrition services and to promote early and exclusive breastfeeding.
4. In conjunction with the above, determine the feasibility of one or more project ideas. (See the project ideas below.)
5. Prepare a concept paper for at least one and possibly two potential projects that might be developed with future AID support. Concept papers will describe proposed activities, suggest possible implementing and recipient organizations, and analyze the factors favoring and those potentially blocking a successful effort. While an initial time line and an estimate of the type and level of technical assistance required to develop the proposed activities would be included, the time available to the team will not allow for the development of an illustrative local cost budget. In any event, we assume that this task could be completed more successfully by the CSSP/Department of Health than by a group of outsiders.

PROJECT IDEAS THAT HAVE BEEN SUGGESTED FOR MOTHERCARE INVESTIGATION

STRATEGIES FOR REACHING WOMEN WITH INFORMATION AND SERVICES: The CSSP/Department of Health is exploring channels that are outside of the traditional health care delivery system for improving the childbirth knowledge and practice of women and their families. As part of this assessment, it is proposed that MotherCare assist CSSP/Department of Health to determine the feasibility of working through one or more of the channels listed below:

- * women's groups, especially church groups, which are located in even the most remote villages;
- * the two national women's organizations;
- * the adult literacy program;
- * the primary school health curriculum; and,
- * other community development programs.

While our assessment would also address the status of more traditional health education efforts through the medical services, the type of alternative approach suggested by CSSP is very much in line with the MotherCare Project's mandate to find better ways to reach women and families with the information that will impact their health behaviors. MotherCare Subcontractors, CEDPA and The Manoff Group, could potentially provide additional technical assistance for this type of intervention if it is judged to be desirable at some point in the future.

STDs: MotherCare has recently begun work with the A.I.D. AIDS Coordinator on the detection and treatment of sexually transmitted diseases during pregnancy. Special emphasis is being placed on syphilis because of its relationship to AIDS, its detrimental impact on infant survival and the recent development of low-cost technology for its detection. Communications and other programmatic efforts encouraging the prevention and treatment of syphilis during pregnancy should also result in increased detection and treatment of other potentially dangerous STDs. This is an area that MotherCare would like to explore in PNG, if this is desirable to USAID, CSSP and the Department of Health.

STRENGTHENING OF THE MATERNAL HEALTH SERVICES: During an assessment of this type, MotherCare typically addresses the content and quality of clinical services--especially screening and referral services--for pregnant women and neonates. In this vein, we understand that CSSP and the Department of Health are already working with in-service training for health personnel on the topic of maternal health, and with the village birth attendant training programs. As a result, they have collected a great deal of information about the knowledge and skills of providers, and about the management issues affecting the delivery of clinical services. We understand that the Department of Health is also working with JHPIEGO on distant training materials on the topic of maternal health, as well as with SEATS, UNFPA and others on the development of family planning training and services.

Because of these on-going activities, we do not foresee the need to spend as much time as we might in another situation assessing the quality of clinical care or making recommendations for improvements in the clinical training of providers. However, as MotherCare has gained considerable experience in other parts of the world in these technical areas, we would be more than willing to share our experiences with the CSSP/Department of Health and to learn more about their on-going and planned activities. We would also include a description of these activities and findings in our report.

The MotherCare Team will be prepared to explore other potential areas of interest to USAID, CSSP and the Department of Health, as time allows.

Proposed MotherCare Assessment Team Members:

Patricia Taylor, JSI, MotherCare Long Term Projects Coordinator

Ms. Taylor is a health planner with 15 years of experience in the design and management of maternal/child health and family planning programs. She has headed MotherCare country assessments in Jordan, Bolivia, Guatemala and El Salvador and worked in a number of countries (like Papua New Guinea) where women themselves or their immediate family members are the principal birth attendants and emergency obstetrical care is all but non-existent. Ms. Taylor will lead the MotherCare team, coordinating the work of team members, facilitating the formulation of findings and recommendations, and coordinating preparation of the team's report. She will assist the other team members with their assignments, as needed, and take primary responsibility for the portion of the assessment related to the structure and resources of the maternal health care delivery system, the programs of national and international agencies with relevance to maternal health, and the social marketing resources in the country.

Willa Pressman, CEDPA, MotherCare Technical Advisor

Ms. Pressman and her parent organization, CEDPA, have many years of experience training and assisting women's organizations and individual managers to develop women-to-women health and development programs. A public health specialist, who worked in Uganda and Sudan before joining MotherCare, Ms. Pressman is currently working with us on the development of an innovative Safe Motherhood Project in Uganda and with CEDPA on the management of a number of projects throughout East Africa. As a member of the assessment team, Ms. Pressman will focus at the community level, exploring the coverage of existing organizations and workers and assessing their interest in and ability to add maternal health activities to their on-going work.

Marsha Dupar, ACNM, Nurse Midwife

Ms. Dupar is a certified nurse midwife with program experience in Uganda, Ghana, Burkina Faso, Nepal and the U.S. In addition to developing and conducting TBA training programs, she has worked on the training of nurse midwives and other primary care providers. Prior to the assessment, Ms. Dupar will serve as a resource person to CSSP and the Department of Health during the Village Birth Attendant workshop and, following the workshop, she will work with them to develop national guidelines for VBA training programs. A separate scope of work for this set of activities is included.

Ms. Dupar will participate on the MotherCare assessment team only during the first week of their activities in-country. Besides helping to brief the team on birth practices and the role of VBAs, Ms. Dupar will address the quality of maternal health care at the primary and "first referral" levels. This will involve discussions with Village Birth Attendants, nurses, nurse aides, Health Extension Officers and program managers. She will place special emphasis on the content of maternity care, and on the characteristics of provider-client interactions and the transfer of health information. She will also assist the team leader to assess the need and the potential for prenatal syphilis detection and treatment.

APPENDIX 3: LIST OF CONTACTS

APPENDIX 3

LIST OF CONTACTS

Port Moresby

Department of Health

- Dr. Levi Sialis - Acting Director General, also First Assistant Secretary for Primary Health Care)
- Dr. Tompkin Tabua - Senior Medical Officer, STD/AIDS Program
- Ms. Angie Brown - Nurse, STD/AIDS Program

CSSP/PNG Department of Health

- Dr. Jerry Rosenthal - Chief of Party
- Ms. Margaret Street - Community Health Nursing Advisor
- Dr. Keith Edwards - MCH Physician Advisor
- Alan Bass - Logistics Management Advisor

WHO/PNG Department of Health

- Michael J. O'Leary - Epidemiologist, STD/AIDS program
- Barry Karlin - Health Education Advisor
- Dr. John Mills - MCH Advisor

Department of Home Affairs and Youth

- Margaret Ratu Misso - Principal Programme Coordinator, Women's Division
- Maryline Kjai - Family Life Development Officer, Women's Division

Melanesian Council of Churches

- Ann Kerepia - Women's Officer

Momase Regional Council of Women

- Maria Ibai Hayes - Regional Representative

USAID Mission

- Dr. David Calder - Chief, Health and Population Office/Suva
- Louis H. Kuhn - Assistant Director

Kathy Simmons - Health Program Assistant

Gorokha

Institute for Medical Research (IMR)

Dr. Carol Jenkins - Anthropologist
Gerard Saleu - Pediatric Nurse/Sepsis study

East Sepik Province

Provincial Government

Alois Jerowai - Provincial Secretary
Bla Seiloni - Deputy Administrator

Provincial Health Office

Dr. John Sarire - Assistant Secretary of Health
Albert Bunat - Information Officer
Clementine Yaman - Provincial Nutritionist
Theresa Hokmori - MCH Matron
Augusta Aup - Prov. Nursing Officer
Sarry Wimban - Prov. Health Extension Officer
Mathew Falan - Prov. Dental Officer
Francis Seegar - Prov. PHC Coordinator
Mark Nakgai - Prov. Health Inspector
Conrad Kambi - Prov. Disease Control Officer
Gariel Kaivi - Malaria Supervisor

Community Development Division

John Kanawy - Assistant Secretary for Community Development

Family Planning Association

Jill Sakupati - Provincial Organizer

East Sepik Council of Women

Mary Soondraw - President
Tailepa Teliwa Samuel - Executive Officer/Provincial Women's Officer
Evangeline Kaima - Literacy and Awareness Coordinator
Diane Kaumas - Health, Appropriate Technology and Nutrition Coordinator
Meri Naivunivuni - Sewing Coordinator

- | | | |
|---------------|---|--|
| Scholar Itaar | - | Department of Primary Industry |
| Gertrude Karu | - | Department of Commerce, Trade and Industry |
| Esther Kolbob | - | Handicraft Coordinator |
| Laura Martin | - | Previous Council President |
| Mary Rose | - | Business Development Officer |
| Lucy Goro | - | Maprik District Coordinator |

Wewak District

Mungi Village - Village Development Committee members

Wewak Hospital staff

Maprik District

Wosera Health Center staff

Maprik Health Centre staff

Medicine Meri, CBD and Village Health Committee members

West Sepik Province

Provincial Government

- | | | |
|------------------|---|--------------------------------------|
| Chris A. Vhruri | - | Provincial Secretary |
| Mercio Kalit | - | Lumi District Officer In-Charge |
| Terese Nicholson | - | Provincial Staff Development Officer |
| Terry Turner | - | Provincial Affairs |

Provincial Health Office

- | | | |
|-------------------|---|---------------------------------|
| Dr. Markus Weibon | - | Assistant Secretary |
| Arnold Ake | - | Primary Health Care Coordinator |

Catholic Mission Health Services

- | | | |
|------------------|---|------------------|
| Ms. Daphne White | - | Health Secretary |
|------------------|---|------------------|

Community Development Office

- | | | |
|-----------------|---|----------------------------|
| Veronica Jekede | - | Assistant Secretary |
| Julie Yanco | - | Provincial Women's Officer |

West Sepik Council of Women

Leoni Rhumrhum - President (also national Broadcasting Commission)
Viola Yagata - Vice President
Marianne Bower - Treasurer

Lumi District

Fatima Health Sub-Center staff

Lumi Health Center staff

Women's groups at Lumi and church groups at Fatima Stations

Vanimo District

Ossima Health Subcentre and Catholic Mission staff

Bewani Health Centre staff and Sub-district In-Charge

Vanimo Hospital staff

Women's groups at Ossima and women's and church groups at Bewani

Madang Province

Provincial Government

- Provincial Secretary

Provincial Health Office

Augustine B. Dunstan - Assistant Secretary

Provincial Community Development Office

Ivan Mulul - Assistant Secretary
Women's Officer - Edna Mulai

Madang Council of Women

Elas Gidik - President
Mrs. Mary Kamang - Past President and Nursing Officer Health Department

World Vision

| | | |
|----------------|---|----------------------------------|
| Joel Banam | | Country Manager |
| Josie Mari | | Finance Manager, WID Coordinator |
| John Aupae | - | Area Project Coordinator |
| Clement Kauwi | - | Training Coordinator |
| Matthew Hapoto | - | Area Project Coordinator |

Country Women's Association

| | | |
|-----------|---|--------------------|
| Lucy Buck | - | Cottage Supervisor |
|-----------|---|--------------------|

BEST, Inc.

| | | |
|-----------------|---|---------------------------|
| Wendy Binggeli | - | Coordinator (CUSO) |
| Mary Jean Wason | - | Woman's Consultant (CUSO) |

Siar Village

Women's and Church groups

Siar Village Aidpost

_____ Village

Women's groups from four surrounding hamlets

Village Aidpost

APPENDIX 4: PNG HEALTH STATISTICS
(From Department of Health, "Handbook Health Statistics Papua New Guinea, 1989")

**PAPUA NEW GUINEA
STATISTICS AT A GLANCE**

| | YEAR | DATA |
|---|----------|---------|
| AREA (in 100 sq km) | 1989 | 463840 |
| ESTIMATED POPULATION: | 1989 | 3644700 |
| MALE | 1989 | 1886200 |
| FEMALE | 1989 | 1758500 |
| POPULATION DENSITY PER SQ.KM | 1989 | 7.9 |
| SEX RATIO (MALES PER 100 FEMALES) | 1989 | 107 |
| ESTIMATED FEMALE POPULATION (15-44 YRS AGE GROUP) | 1989 | 789200 |
| PERCENTAGE OF POPULATION | | |
| LESS THAN 15 YEARS | 1989 | 40.6 |
| 65+ YEARS | 1989 | 2.3 |
| PERCENTAGE OF URBAN POPULATION | 1980 | 13.0 |
| ANNUAL GROWTH RATE (% PER ANNUM) | 1980-200 | 2.2 |
| CRUDE BIRTH RATE (PER THOUSAND POPULATION) | 1985-199 | 34.7 |
| CRUDE DEATH RATE (PER THOUSAND POPULATION) | 1985-199 | 12.1 |
| RATE OF NATURAL INCREASE (%) | 1985-199 | 2.26 |
| LIFE EXPECTANCY AT BIRTH (IN YEARS) | 1980 | 49.6 |
| INFANT MORTALITY RATE (PER THOUSAND LIVE BIRTH) | 1980 | 72 |
| TOTAL FERTILITY RATE | 1980 | 5.4 |
| LITERACY RATE | 1980 | 32.1 |
| PER CAPITA HEALTH EXPEN | 1989 | 24.64 |
| % OF TOTAL GOVERNMENT E | 1989 | 7.7 |
| HEALTH EXPENDITURE AS % | 1989 | 2.8 |
| PHYSICIANS | 1989 | 361 |
| PROFESSIONAL NURSING/MII | | |
| NURSING OFFICER | 1989 | 1767 |
| NURSE AIDE | 1989 | 1474 |
| AID POST ORDERLIES | 1989 | 2108 |
| HOSPITAL ORDERLIES | 1989 | 223 |

CASES OF DISEASES UNDER THE WHO
ANNUAL BULLETINS

1989

| | |
|------------|-------|
| GONORRHOEA | |
| SYPHILIS | 22540 |
| YAWS | 7119 |
| | 3421 |

1989

SELECTED CAUSES OF MORBIDITY:

| | CASES | /100,000 POPULATION |
|---------------|--------|------------------------|
| DIARRHOEA | 97305 | 2658 |
| INFLUENZA | 137260 | 3749 |
| GONORRHOEA | 22540 | 616 |
| MEASLES | 9799 | 268 |
| SYPHILIS | 7119 | 194 |
| PERTUSSIS | 2380 | 65 |
| PIGBEL | 241 | 6.6 |
| TETANUS | 96 | 2.6 |
| POLIOMYELITIS | 26 | 0.7 |

ENVIRONMENTAL STATISTICS:

1983

| | | |
|--|-------|------|
| % OF POPULATION WITH SAFE WATER | URBAN | 54.7 |
| | RURAL | 10.0 |
| % OF POPULATION WITH ADEQUATE SANITATION | URBAN | 50.9 |
| | RURAL | 3.4 |

IMMUNIZATION

% OF CHILDREN UNDER 1 YEAR FULLY
IMMUNIZED AGAINST:

1989

| | |
|--------------|------|
| TA | |
| POLIO | 53.3 |
| TUBERCULOSIS | 51.6 |
| MEASLES | 81.8 |
| | 52.4 |

M C H

1989

| | |
|--|------|
| % OF CHILDREN ATTENDING MCH CLINICS (NEW ATTEND) | 26.0 |
| UNDER 1 YEAR (COVERAGE) | 87.4 |
| 1 - 4 YEARS (COVERAGE) | 9.2 |
| ESTIMATED PERCENTAGE OF BIRTH IN HEALTH FACILITIES | |

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1989

| LEADING CAUSES OF MORBIDITY | ICD CODES | CASES | % |
|---|-----------|---------------|--------------|
| Normal deliveries (incl. BBA) | 410-411 | 47773 | 19.2 |
| Pneumonia | 321 | 34752 | 13.9 |
| Other Types of Malaria | 0529 | 26604 | 10.7 |
| Diseases of skin and subcutaneous tissue | 420-429 | 12337 | 4.9 |
| Ill-defined intestinal infections | 016 | 9933 | 4.0 |
| Open wounds and injury to blood vessels | 500-509 | 8866 | 2.8 |
| Direct obstetric conditions | 390-399 | 6827 | 2.7 |
| Diseases of musuloskeletal system & connective tissue | 430-439 | 6181 | 2.5 |
| Diseases of female genital organs | 370-379 | 6114 | 2.5 |
| Anaemias | 200 | 5820 | 2.3 |
| Others | | 86212 | 34.6 |
| T O T A L | | 249419 | 100.0 |

SOURCE: STATISTICS SECTION

| LEADING CAUSES OF MORTALITY | ICD CODES | CASES | % |
|--|-----------|-------------|--------------|
| Pneumonia | 321 | 1327 | 23.9 |
| Certain conditions originating in the perinatal period | 450-459 | 596 | 10.7 |
| Meningitis | 220 | 338 | 6.1 |
| Cerebral Malaria | 052 | 241 | 4.3 |
| Tuberculosis | 020-029 | 231 | 4.2 |
| Ill-defined intestinal infections | 016 | 228 | 4.1 |
| Diseases of pulmonary circulation and other forms of heart disease | 280-289 | 220 | 4.0 |
| Other types of Malaria | 0529 | 194 | 3.5 |
| Septicaemia | 038 | 177 | 3.2 |
| Diseases of other parts of the digestive system | 340-349 | 176 | 3.2 |
| Others | | 1826 | 32.9 |
| T O T A L | | 5554 | 100.0 |

SOURCE: STATISTICS SECTION

| CASE FATALITY RATE FOR LEADING CAUSES OF DEATHS | CASES | DEATHS | CASE FATALITY |
|--|-------|--------|---------------|
| Pneumonia | 34752 | 1327 | 3.8 |
| Certain conditions originating in the perinatal period | 5449 | 596 | 10.9 |
| Other types of Malaria | 26604 | 338 | 1.3 |
| Tuberculosis | 3630 | 241 | 6.6 |
| Ill-defined intestinal infections | 9933 | 231 | 2.3 |

SOURCE: STATISTICS SECTION

| CASES OF DEATHS FOR SEVEN (7) DISEASES UNDER EPI | CASES | DEATHS | CASE FATALITY |
|--|-------|--------|---------------|
| Diphtheria | 0 | 0 | 0.0 |
| Pertussis | 2380 | 18 | 0.8 |
| Tetanus | 96 | 8 | 8.3 |
| Polioomyelitis | 26 | 0 | 0.0 |
| Tuberculosis | 3630 | 231 | 6.4 |
| Measles | 9799 | 101 | 1.0 |

APPENDIX 5: PNG HEALTH SERVICES

(From Department of Health, "Papua New Guinea National Health Plan 1991-1995")

Chapter 5

REVIEW OF HEALTH SERVICES DELIVERY

A. PRIMARY HEALTH SERVICES

INTRODUCTION

Primary health services are those services provided by the formal health system at the first level of contact with individuals, families and communities. They are provided as close as possible to where the recipients live and work. In Papua New Guinea primary health services are the responsibility of provincial Divisions of Health and are delivered through a network of aidposts, health centres, mobile maternal and child health clinics, urban clinics and hospital outpatient departments.

PRIMARY HEALTH SERVICES ADMINISTRATION

Provincial health services operate at three levels. At the community or village level are aidposts and in some areas, a limited number of village midwives and village health volunteers; in the larger village communities, health subcentres; at district level, health centres, or sometimes rural hospitals; and at provincial level the provincial or base (regional) hospitals. In urban areas, urban clinics and hospitals provide the services that in the rural areas are provided by aid posts and health centres. In the rural areas, the key to the development of primary health services is the health district with its district health centre. In each health district, a health centre is responsible for the management and supervision of all the health services, subcentres and aid posts within that district. The health centre may be run by government or church, and so church health centres may be responsible for the professional supervision of government staff, and vice versa. In some provinces where this has been applied, the arrangement with church institutions has been formalized by a contract which specifies the responsibilities of each party. Wherever possible, health districts include whole census units.

PRIMARY HEALTH SERVICES FACILITIES

(a) RURAL HOSPITAL

In certain exceptional cases, small hospitals with a medical officer in charge, form the base for the delivery of health services in a district. The inclusion of these rural hospitals for the first time in the Plan represents a major policy shift by the Department of Health. Over the next five

years, in a staged manner, it is intended to clearly define standards for rural hospitals and to support the improvement of selected institutions. Rural hospitals serve geographically isolated areas, or areas of high population density and aim to both improve the standard of health care in those areas, as well as reduce the flow of minor level referrals to the provincial hospital. Rural hospitals carry out the same functions as health centres, but have laboratory, xray and limited operating theatre capability. A rural hospital would be expected to serve a population of greater than 20,000, see more than 800 inpatients and 25,000 outpatients and supervise in excess of 200 deliveries each year. Rural hospitals would be expected to see more than 5,000 attenders at child health clinics, more than 350 antenatal clinic attenders and more than 300 family planning clinic attenders annually.

FUNCTIONS

Detailed functions for rural hospitals have not yet been agreed upon and cannot be specified in the Plan. Broadly, rural hospitals will carry out all of the functions of a health centre and will provide specified additional laboratory, xray and theatre procedures. In order to implement the new policy the following steps will be taken over the plan period:

1. A survey will be undertaken of existing rural hospitals to determine their existing staff, equipment and functions;
2. Clear guidelines will be established on the role and functions of rural hospitals and standards for their operation;
3. The need for new rural hospitals will be determined in accordance with those standards;
4. The capital and recurrent costs of upgrading existing and the establishment of new rural hospitals will be determined;
5. Donor support to finance the development will be sought.

(b) HEALTH CENTRE

A health centre is the base from which a comprehensive health service is usually delivered to the population of the health district. The health centre is responsible for supervision of all health services provided within the district. The population served by a health centre ranges from 8,000 to 20,000 depending on the population density, access and communication. A health centre would be expected to see 400-600 inpatients and 20-25,000 outpatients and supervise 100-150 deliveries each year. Annual clinic attendance for a health centre would be expected to be 4,000 to 5,000 for child health, 250 to 350 for antenatal care and 200 to 250 for family planning services.

FUNCTIONS

(i) Outpatient service includes:

- intake and examination of new outpatients with treatment according to the appropriate standard treatment manuals. Standard hours of operation are: weekdays 07.45-12.00, and 13.00-16.00; Saturday 07.45-12.00; Sunday 10.00 - 12.00
- review re-attenders, examine and continue treatment if necessary
- all referrals to outpatients to be seen by a nurse or HEO
- weigh attending children and check their immunization records and advise or immunize if necessary
- provision of a full range of contraceptive options to women and men attending outpatient clinics
- provision of 24 hour emergency service, with a rostered first and second on-call. The second on-call is a nurse or health extension officer, and must be available when rostered. Display of on-call staff names so they are clearly evident to inpatients and outpatients attending casualty after hours
- perform minor procedures under local and ketamine anaesthesia, including: suture and dressings; reduction of simple fractures; tissue biopsy; abscess draining and packing; skin grafting for burns and ulcers
- treatment of patients with sexually transmitted diseases using appropriate drugs and in a non-judgemental way; active follow-up and treatment of STD contacts; documentation of cases for Division of Health statistics
- follow up of cases of tuberculosis, leprosy and typhoid and their family contacts; follow-up should a patient default during treatment

(ii) Maternal and Child Health activities encompass care provided to mothers and children both through clinics and at the facility. All clinics should provide the full range of maternal, child health and family planning services.

Family planning

- promote, advise and supply methods of family planning to all aidposts
- provide a full range of contraceptive options to women and men through outpatient clinics, special family planning clinics, and through MCH clinics

- fit intra-uterine contraceptive devices, if indicated (a health center)
- use MCH services to help in directing information and services to couples who could benefit from family planning services

Children under 5 years of age

- Organize regular, monthly MCH clinics to cover all the villages and hamlets falling into the allotted clinic area
- maintain updated records of under five year olds living in these villages and register all births and deaths
- vaccinate children according to the standard management manuals
- monitor nutritional status by regular weighing and chart in the child's health book; review carefully children losing or under weight and treat any illness; ask the mother about feeding habits and suggest modification where appropriate
- treat sick children and refer those needing further care

Maternal care

- provide antenatal services for all mothers
- see women as early in pregnancy as possible; take a full obstetric history; conduct a general physical and pelvic examination, in privacy; encourage mothers to deliver with health worker supervision; treat anaemia; provide standard prophylactic drugs and vaccines as per standard management recommendations
- identify and refer mothers who are in the high risk category
- follow up the woman through the clinics: see low risk multigravidae twice during pregnancy; see primigravidae, and high risk women every 2 months; follow-up if a previous attender fails to return
- treat other sick people who attend MCH clinics
- provide regular care and followup to mothers in the post natal period
- liaise with the CHWs in the identification and followup of high risk mothers

- (iii) Inpatient service provides inpatient care that follow the standard inpatient care outlined in the standard treatment manuals.

General

- provide inpatient care with staff in daily attendance, a staff rostered to give night time drugs and to review particularly sick patients as necessary
- provide regular clinical monitoring of patients, such as daily temperature monitoring; record all drugs administered and review the clinical condition of the patient on a regular basis (including weekends) as dictated by the patients condition, and record this information in the patients records
- carry out laboratory examinations accurately and promptly. Basic tests expected where indicated are: sputum for acid fast bacilli; leprosy smears; haemoglobin estimation (Salhi method or colorimetric); cerebro-spinal fluid and malaria parasite microscopy.
- refer patients to the provincial hospital

Obstetric

- provide a clean, private and comfortable delivery area with toilet and washing facilities adjacent
- provide nursing 24 hours/day on call for mothers in labour
- be able to monitor labour using standard cervicographs
- be prepared for major common complications and emergencies, requiring IV fluids and oxytocics drugs
- have the equipment to perform vacuum extraction; remove freshly retained placentae; suture the perineum; to resuscitate an asphyxiated baby
- refer complications to the provincial hospital

iv) Management/Administration

- supervise activities of and treatment by APO/CHWs in the district, and staff working in subcentres
- supply the aidposts with pharmaceuticals and minor equipment and support the APO/CHWs in their work
- liaise with the community through district council

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representatives and village health committees

- maintain financial and inventory records of food, fuel and pharmaceuticals received and used

- establish and ensure the proper functioning of a Health Management Board

- be responsible for the planning of health services in the district, including outreach and patrol activities

- provide periodic inservice for district staff

- undertake basic analysis of health information and use it to monitor the provision

(v) Other services to be provided at the health centre level include: dental, laboratory, malaria control and health inspection.

STAFFING

The numbers and types of staff at health centres depend upon the workload of the facility. It is a matter of policy that health centres be staffed with an health extension officer. The estimation of other staff requirements is based on annual workloads. For rural health the requirements for nursing officers and community health workers (incorporating nurse aides, aidpost orderlies, hospital orderlies and community health workers) are calculated on the basis of the following components:

- annual admissions;
- annual outpatients;
- annual supervised deliveries ; and
- annual clinic attendances.

The calculation for the recommended number of nursing officers is:
Admissions divided by 600 plus
Outpatients divided by 11,000 plus
Total Clinic Attendances (MCH, antenatal, family planning) divided by 7,000 plus
Supervised deliveries divided by 150.

The calculation for the recommended number of community health workers is:
Admissions divided by 300 plus
Outpatients divided by 6,500 plus
Total Clinic Attendances (MCH, antenatal, family planning) divided by 9,000.

The number and mix of staff is dependent on the ISN assessment but a basic minimum of staff for a health centre is:

- HEO (1), in charge of the centre;
- nursing officers (2), one assigned to MCH, the second to inpatient, outpatient, and obstetric duties;
- CHWs or nurse aides (4) assigned to outpatients and inpatients (3), MCH clinics (1), and all 4 to participate in on call duties; and (2) to work in outpatients and inpatients;
- labourer (1);
- other paramedicals as required by the functions of the facility (ie.health inspector).

FACILITIES REQUIRED

OPD area with minor operations area;
20-40 inpatient beds;
obstetric room;
offices for OIC and MCH nurse;
drug store;
laboratory;
refrigeration and sterilization;
electrical or solar power for obstetric area;
running water;
ration store;
ablution block;
simple incinerator for disposal of infectious waste;
appropriate transport at centre;
radio or telephone contact with Division of Health

ACCOMMODATION

Housing with tin roof, and water supply for staff, except for labourers.

(c) HEALTH SUB-CENTRE

A health subcentre is an institution which serves a population ranging from 5,000 to 8,000 depending on population density and ease of communication . A health subcentre would be expected to see 300-500 inpatients and 12-20,000 outpatients and supervise 100 to 150 deliveries each year. The expected range of annual clinic attendances for a health subcentre would be 2,000 to 4,000 for child health, 100 to 250 for antenatal and 100 to 200 for family planning.

FUNCTIONS

(i) Outpatient services

- see and examine new outpatients and treat according to the appropriate standard treatment manuals during the following times : weekdays 8.00 - 16.00; Saturday 8.00 - 11.00; Sunday 10.00 - 12.00
- review re-attenders, examine and continue treatment if necessary
- check attending children's immunization records and advise or immunize if necessary
- promote, advise and supply family planning to all men and women
- treat patients with sexually transmitted diseases with appropriate drugs and in a non-judgemental way; actively follow-up and treat STD contacts; record cases for Division of Health statistics
- recognize possible cases tuberculosis, leprosy or typhoid, and refer for confirmatory diagnosis or discuss with the district HEO or medical officer
- provide MCH services for the whole population the centre is responsible for at the health centre and at outreach clinics, covering the following areas:

(ii) Maternal and Child Health Services encompass care provided to mothers and children both through clinics and at the facility. All clinics should provide the full range of maternal, child health and family planning services.

Family planning

- provide a full range of contraceptive options to women and men through outpatient clinics, special family planning clinics, and through mobile and outreach MCH clinics
- use MCH services to help in directing information and services to couples who could benefit from family planning services

Children under 5 years of age

- organize regular, monthly MCH clinics to cover all the villages and hamlets falling into the allotted clinic area
- maintain updated records of under five year olds living in

these villages and register all births and deaths

- vaccinate children according to the standard management manuals

- monitor nutritional status by regular weighing and chart in the child's health book; review carefully children losing or under weight and treat any illness; ask the mother about feeding habits and suggest modification where appropriate

- treat sick children and refer those needing further care

Antenatal Care

- provide antenatal services for all pregnant women

- see women as early in pregnancy as possible; take a full obstetric history; conduct a general physical and pelvic examination, in privacy; encourage mother to deliver under health worker supervision; treat anaemia; provide standard prophylactic drugs as per standard management recommendations

- follow up the woman through the clinics, and see low risk multigravidae twice during pregnancy; see primagravidae, and at risk women every 2 months; follow-up if a previous attender fails to come

(iii) Inpatient services

General

- provide inpatient facilities for those patients too sick to be managed on an outpatient basis, or prior to referral to a health centre

- provide health worker cover for these patients, with staff rostered to give night time drugs and to care for particularly sick patients as necessary

- review the clinical condition of the patient on a regular basis (including weekends) as dictated by the patients' condition; document the patients' progress and all drugs prescribed and administered

Obstetric

- provide a clean, private and comfortable delivery area,

- have staff available on call 24 hours/day for mothers in labour

- be able to monitor labour using standard cervicographs

- be prepared for major common complications and emergencies requiring IV fluids, oxytocics, suture equipment
- be able to resuscitate an asphxiated baby

(iv) Management/Administration

- where the supervisory health centre is geographically distant from an aidpost, supply with pharmaceuticals and materials and support and supervise the APO/CHW in their work
- management of sub-centre finances where establishment grants are given (mission centres); and management and maintenance of transport where in centres with vehicles
- establishment and proper functioning of the health subcentre management committee

STAFFING

As a matter of policy, staffing for health subcentres should be determined on the basis of the ISN formulae. Minimum staffing, however should be 2 nursing officers and 2 CHWs required to provide MCH and continuous obstetric/emergency cover, part time casual staff for labouring and MCH equipment carrying on foot patrol.

FACILITIES REQUIRED

OPD area;
 2 - 10 inpatient beds;
 obstetric room;
 office;
 drug store;
 refrigeration and sterilization;
 electrical or solar power for obstetric area;
 appropriate transport at centre or available through health centre for clinics and transfer of patients;
 radio or telephone contact with district Health Officer in Charge or provincial health office.

ACCOMMODATION

Housing with tin roof and water supply for all staff except labourers

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(d) AIDPOST (TWO CHWs)

A two person aid post is an institution providing a basic level of health care for a defined population of between 1,000 and 5,000. (this may vary according to geography and communication). It would be expected to have an annual workload of 10,000 to 12,000 outpatients, emergency inpatients, less than 1,000 child health attendances, less than 200 antenatal attendances and less than 100 family planning attendances. A limited number of deliveries would be supervised by the CHW in the village.

FUNCTIONS

- use the standard treatment manuals to determine treatment and refer cases to the local health centre with a letter should the illness be serious or not responding to basic curative measures
- provide attenders to clinic with information about their condition and the possible measures they can take to prevent the condition recurring again in themselves or their family
- record attenders at outpatients on a daily roll, follow-up defaulters, and record child illness episodes in the child's clinic book
- promote family planning and other good health practices by counselling at every occasion
- provide family planning according to standard practice (condoms to men, oral contraceptive pill, depoprovera to women) and give advice about sterilization and IUCD methods
- use MCH records and short assessment record to help in directing information and services to couples who could benefit from family planning services
- promote and assist with village quality of life programmes using the basic human needs indicators
- actively participate in the follow-up and maintenance of patients on TB and leprosy therapy
- act as a resource to the community regarding community environmental health issues, particularly in regard to sanitation, water supply and nutrition
- participate in MCH clinics run by the nurse from the health centre or subcentre in weighing, vaccinating and examining children and pregnant women

- provide an outpatient service during each working day 8.00 to 13.00; 18.00 -20.00; provide 24 hour coverage for advice and treatment of medical emergencies
- provide (or staff) Saturday and Sunday morning clinic by one CHW for new illnesses and reattendances for parenteral drugs (excludes sore dressing)
- staff the centre at all times even on pay weeks
- provide limited inpatient care for patients if they are too sick to return home
- follow up people seen at the MCH clinic includes the following: children seen at the clinic who were sick and in need of follow-up treatment or review; malnourished children, where a home visit to help and advise the parents is appropriate; antenatal mothers, to resupply drug prophylaxis and encourage compliance; family planning acceptors, to provide further supplies of oral contraceptives or injections;
- make notes of people seen at outpatient clinic with chronic conditions that may require a HEO to review during supervisory visits
- provide antenatal services for all pregnant mothers: see women as early in pregnancy as possible; take a full obstetric history; conduct a general physical and pelvic examination, in privacy; advise mother to deliver under health worker supervision; treat anaemia; provide standard prophylactic drugs as per standard management recommendations; follow up the woman through the clinics
- vaccinate children according to the standard management manuals
- monitor nutritional status by regular weighing and chart in the child's health book; review carefully children losing or under weight and treat any illness; ask the mother about feeding habits and suggest modification where appropriate
- treat sick children and refer those needing further care
- maintain updated records of under five year olds living in these villages using the daily log and register all births and deaths
- attend to village deliveries at the request of the mother or husband

FACILITIES

outpatient treatment area
inpatient area (2-4 beds)
area suitable for conducting child clinics
place for examining patients
drug store
sink and water supply and toilet facilities
sterilizer

There should be a notice board with the name of the on call CHW clearly displayed
office area for organizing clinic records
refridgerator
basic delivery equipment
radio contact with health centre

STAFF DUTIES

One CHW will be put in charge; responsibilities outlined in level of service to be clearly divided between the 2 workers, although in practice they will share the work

STAFF HOUSING

Housing with a tin roof and external tank and latrine.

(e) AIDPOST (SINGLE CHW)

An aidpost is an institution providing a basic level of care to a population ranging from 500 to 3000. It is staffed by one aidpost orderly or community health worker.

FUNCTIONS

- provide an outpatient service during each working day 8.00 to 13.00; staff available in the evening 18.00 -20.00 for minor acute illnesses; staff call for serious illness at any other time
- use the standard treatment manuals to determine treatment and refer cases to the local health centre with a letter should the illness be serious or not responding to basic curative measures
- provide attenders to clinic with information about their condition and the possible measures they can take to prevent the condition recurring again in themselves or their family

- promote family planning and other good health practices at every opportunity
- record attenders at outpatients on a daily roll, follow-up people that default before the treatment course is completed, and record child illness episodes in the child's clinic book
- actively participate in the follow-up and maintenance of patients on TB and leprosy therapy, and other referred patients
- act as a resource to the community regarding community environmental health issues, particularly in regard to sanitation, water supply and nutrition
- promote and assist with village quality of life programmes using the basic human needs indicators
- assist staff from the adjacent subcentre or health centre in carrying out MCH mobile clinics in villages covered by the aidpost/community health post
- follow up people after the MCH clinic:
 - children seen at the clinic who were sick and in need of follow-up treatment or review;
 - malnourished children, where a home visit to help and advise the parents is appropriate;
 - antenatal mothers, to resupply drug prophylaxis and encourage compliance;
 - family planning acceptors, to provide further supplies of condoms, oral contraceptives or injections;
 - record names of people seen at outpatient clinic with chronic conditions that may require a HEO to review during supervisory visits;
 - liaise with the health committee or Aidpost Management Committee concerning community health and environment issues, disease outbreaks, and aidpost maintenance
 - inform a community representative at least 1 day prior to absence from the aidpost for whatever reason

FACILITIES

outpatient treatment area;
 area suitable for conducting child clinics;

place for examining patients;
drug store;
sink and water supply;
sterilizer

STAFF HOUSING

Housing with a tin roof and external tank and latrine

(f) URBAN CLINIC:

An urban clinic is an institution offering outpatient care for adults and children, and maternal and child care for well children and pregnant mothers. The services of urban clinics are closely linked with the outpatients department of the hospital. The officer in charge is a health extension officer or, more usually, a nursing officer. At present no urban clinics have overnight facilities, but the desirability of extending clinics to provide limited inpatient care is under examination.

FUNCTIONS

(i) Outpatient service

- see and examine new outpatients and treat according to the appropriate standard treatment manuals, with an outpatient department open weekdays 07.45-12.00, and 13.00 - 16.00;
- review re-attenders, examine and continue treatment if necessary
- all referrals to outpatients to be seen by a nurse or HEO
- weigh attending children and check their immunization records and advise or immunize if necessary
- provide a full range of contraceptive options to women and men attending outpatient clinics
- treat patients sexually transmitted diseases with appropriate drugs and in a non-judgemental way; actively follow-up contacts of people with STD and treat; record cases for Division of Health statistics
- follow up cases of tuberculosis, leprosy and typhoid and family contacts; take positive action (or follow-up promptly) should a patient default during treatment

(ii) Maternal and Child Health

Maternal and child health activities encompass care provided to mothers and children at the facility. All clinics should provide the full range of maternal, child health and family planning services.

Family planning

- provide a full range of contraceptive options to women and men through outpatient clinics, special family planning clinics, and through MCH clinics
- insert intra-uterine contraceptive devices, if indicated
- use MCH services to help in directing information and services to couples who could benefit from family planning services

Children under 5 years of age

- vaccinate children according to the standard management manuals
- monitor nutritional status by regular weighing and chart in the child's health book; review carefully children losing or under weight and treat any illness; ask the mother about feeding habits and suggest modification where appropriate
- treat sick children and refer those needing further care

Maternal care

- provide antenatal services for all mothers
- see women as early in pregnancy as possible; take a full obstetric history; conduct a general physical and pelvic examination, in privacy; encourage mother to deliver under health worker supervision; treat anaemia; provide standard prophylactic drugs and vaccines as per standard management recommendations
- identify and refer mothers who are in the high risk category
- follow up the woman through the clinics, and see low risk multigravidae twice during pregnancy; see primagravidae, and at risk women every 2 months; follow-up if a previous attender fails to return
- provide regular care and followup to mothers in the post natal period

(iii) Management/Administration

- liaise with the community through district council representatives and village health committees
- maintain financial and stores records of food, fuel and pharmaceuticals received and used
- undertake basic analysis of health information and use it to monitor the provision and quality of services as well as to predict future trends and community health needs.
- provide and maintain regular reports

STAFFING

The numbers and types of staff at urban clinics depend upon the workload of the facility. It is a matter of policy that urban clinics be staffed based on annual workloads. The requirements for nursing officers and community health workers (incorporating nurse aides, aidpost orderlies, hospital orderlies and community health workers) are calculated on the basis of the following components:

- annual admissions;
- annual outpatients;
- annual supervised deliveries ; and
- annual clinic attendances.

The calculation for the recommended number of nursing officers is:
Admissions divided by 600 plus
Outpatients divided by 11,000 plus
Total Clinic Attendances (MCH, antenatal, family planning) divided by 7,000 plus
Supervised deliveries divided by 150.

The calculation for the recommended number of community health workers is:

Admissions divided by 300 plus
Outpatients divided by 6,500 plus
Total Clinic Attendances (MCH, antenatal, family planning) divided by 9,000.

FACILITIES REQUIRED

- OPD area with minor operations area;
- office for OIC ;
- drug store;
- refrigeration and sterilization;
- electrical power,
- running water;
- staff and patient toilets;

appropriate transport at centre;
telephone

ACCOMMODATION

No accomodation to be provided on site.

Primary Health Services Achievements

The 1986-1990 National Health Plan outlined a series of objectives related to primary health services. The objectives and a review of achievements are outlined below.

(a) Increase access to the 4% who still live beyond two hours travelling time of a health facility.

The strategy proposed in the Plan to increase access of unserved areas was to use community health volunteers. The Plan proposed that national guidelines for the selection, training, supervision, possible registration and medical supplies be drawn up in a series of national workshops in 1986 and 1987. The national guidelines for community health volunteers have been completed. While there have been several pilot projects in training of community health volunteers, details of new populations served are not available. It is however, likely that these projects have not significantly extended coverage of the population.

To implement a single primary health care project requires significant resource inputs, both in staff time and travel expenditures. Most successful projects have been supported to some extent by technical assistance from overseas. Availability of trained staff and resources have limited the achievement of this objective.

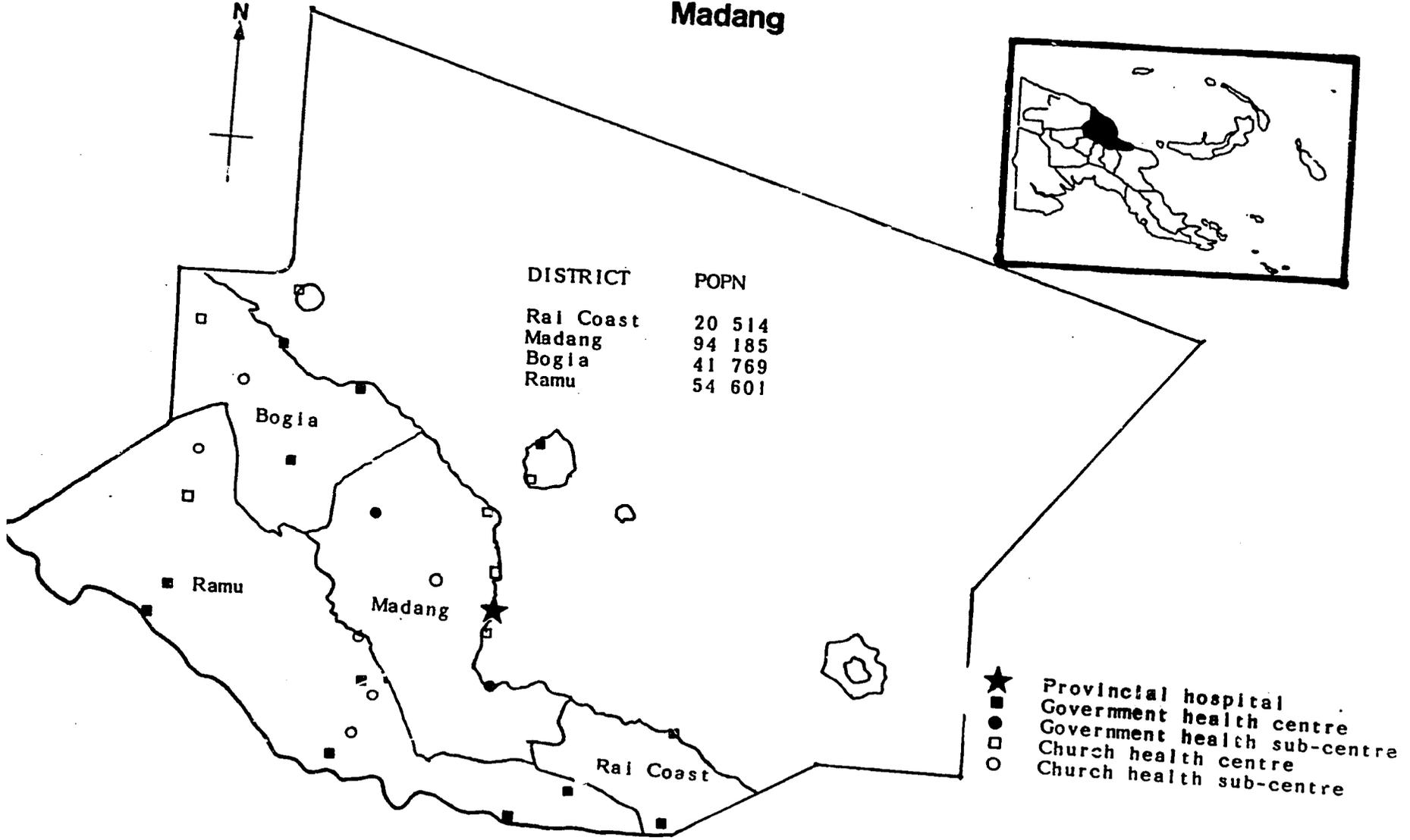
The purpose of this strategy was to reach unserved population groups. The application of the strategy has not achieved this purpose. The levels of training, support and supervision has led to the development of most primary health projects in areas with access by road, water or regular aerservices. Primary health care as a national strategy has proved to be expensive, time consuming and difficult to sustain. One of the reasons for this is that the concept of PHC has often been imposed from outside. Alternative ways need to be investigated of involving communities in their own health care. The principle of primary health care should be maintained, but alternative implementation strategies evaluated. Alternative means of involving communities in improving their own conditions are needed. Means of sustaining involvement with limited outside involvement need to be identified.

**APPENDIX 6: STATISTICS FOR EAST SEPIK, WEST SEPIK,
AND MADANG PROVINCES**

Madang



| DISTRICT | POPN |
|-----------|--------|
| Rai Coast | 20 514 |
| Madang | 94 185 |
| Bogia | 41 769 |
| Ramu | 54 601 |



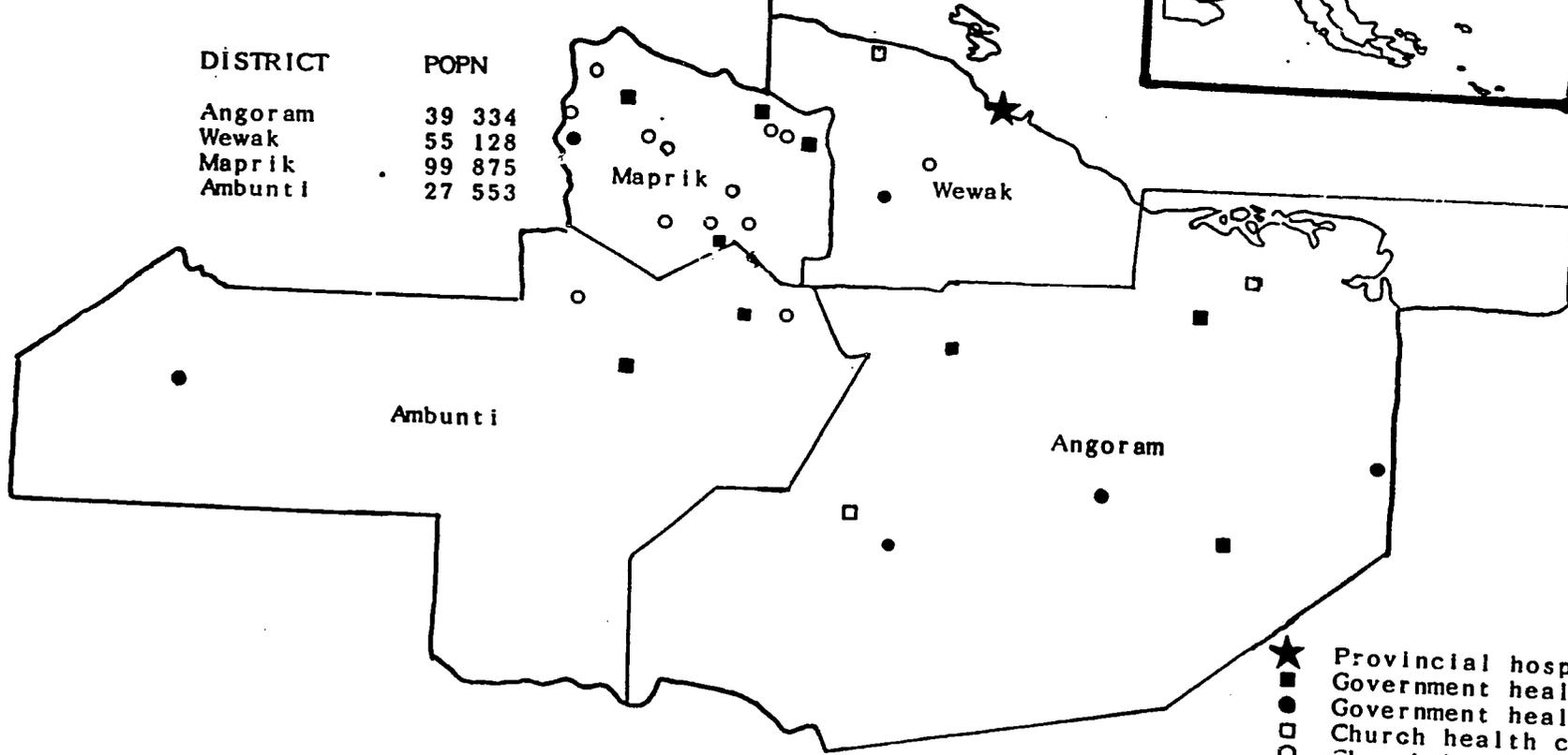
- ★ Provincial hospital
- Government health centre
- Government health sub-centre
- Church health centre
- Church health sub-centre



East Sepik



| DISTRICT | POPN |
|----------|--------|
| Angoram | 39 334 |
| Wewak | 55 128 |
| Maprik | 99 875 |
| Ambunti | 27 553 |



- ★ Provincial hospital
- Government health centre
- Government health sub-centre
- Church health centre
- Church health sub-centre

West Sepik

| DISTRICT | POPULATION |
|-----------|------------|
| Aitape | 19 890 |
| Vanimo | 11 084 |
| Amanab | 19 306 |
| Telefomin | 17 739 |
| Lumi | 24 600 |
| Nuku | 21 573 |

