A REVIEW OF STILLBIRTH CASES IN THE DISTRICT OF BALING, KEDAH DARULAMAN FOR THE YEAR 1987-1991

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1.1 General Introduction

A mother is usually overwhelmed with joy on the arrival of the newborn baby. After months of gestation and careful ante-natal preparation the mother looks forward to the time when she will deliver a normal healthy baby. Nevertheless, there is a small proportion of mothers that will display feelings of despair because their pregnancies end with stillbirths.

Stillbirths are births of foetuses that show no sign of life at birth. Although stillbirth is the least common outcome of delivery, its effect on the person can be devastating. It occurs in 0.7 % to 1.0 % of deliveries. Basically there are two main causes of stillbirths which can be divided into congenital and non-congenital causes. Among the congenital causes which approximately 1 in 4 of all stillbirths, 50.0 % are linked to genetic causes while the others are due to causes such as intrauterine infection, drug induced and diabetes mellitus {1}

Stillbirths due to non-congenital causes include those due to hypoxia, placenta insufficiency, birth trauma, infection or unexplained death (diabetic mother). It had been reported by Poland B.J. that foetal death due to hypoxia account for 16% -70% of foetal deaths, an average of about one third of cases in the West are explainable on this basis {1} .

Stillbirth rates have generally declined over the years in both developing and developed countries. The decline in stillbirth rate is shown to be in line with the decline in perinatal rate. In some developed and developing countries like Austria, Cuba, England & Wales, Hungary, New Zealand and Japan, stillbirths as a component of perinatal deaths shows a minimal difference within a period of ten years that is between 1969 to 1978. {2} (refer to table 1)

This declining trend can be explained by the improvement in a wide range of social and economic circumstances of society including the elevation of living conditions of people, the betterment of health of mothers, the improvement of medical facilities and the protrution of public health programs{3}. Moreover these social

TABLE 1: PERCENTAGE OF LATE FOETAL DEATHS IN PERINATAL MORTALITY 1969-1978 FOR SELECTED COUNTRIES.

COUNTRY	1969(%)	1978(%)
Austria	39	44
Cuba	48	49
Endland & Wales	56	54
Hungary	30	32
Japan	70	65
New Zealand	51	55
Sweden	49	52
United States	42	44(1975)

-SOURCE : WORLD HEALTH STATISTIC, WHO, GENEVA, 1982 .

and economic circumstances should be improved and continuous research along this line should be encouraged so as to yield an effective impact especially upon the stillbirth rate and other mortality rates.

1.2 Definition of Stillbirths

Stillbirth is defined as a birth showing no sign of life at birth with a gestation of 28 weeks or more {5}. Until the year 1977, the lower limit for the definition of stillbirth was 28 weeks of gestation. But as babies less than 28 weeks of gestation do survive, World Health Organization (WHO) recommends that all foetuses and newborns with a birth weight of 500 gm (gestation of 22 weeks or crown-heel length of 25 cm, when birth weight is not known) should be included in the calculation of stillbirth rate.

For international purposes, however, the WHO recommendation is that all newborn infants with 1000 gm (or when weight is unknown, gestational age of 28 weeks and crown-heel length of 35 cm) be used for both the numerator and denominator of these rates. Thus birthweight, rather than

gestational age, is recommended to be used.

1.3 Global Trend

Considerable progress has been made in reducing the perinatal and infant mortality in the recent decades. For the world as a whole, the stillbirth rate has declined in most countries, whether developed and developing countries, but the pace of change and the magnitude of the improvement have varied considerably between countries.

Table 2 shows the trend of stillbirth ratios per 1000 births for several countries for the year 1950 till the years 1979. In the developed countries such as The United State of America, United Kingdom and Australia, as shown in table 2, the stillbirth ratios per 1000 births have generally improved from year to year. As a whole there has been a general convergence of the level of the mortality so that the difference between the countries with the highest and the lowest rates are smaller in 1979 compare to those in the early 1950s.

TABLE 2: TRENDS OF STILLBIRTH RATIOS PER 1000 BIRTHS FOR SELECTED COUNTRIES IN 1950-1974

COUNTRY	1950-1954	1955-1959	1960-1964	1965-1969	1970-1974
BURMA	52.4	38.0	29.1	19.1	-
JAPAN	31.5	31.5	27.8	11.2	8.4
PHILIPPINE	9.1*	9.3*	13.1	12.8	12.4
SINGAPORE	17.0	15.0	12.8	11.0	8.7
CEYLON	12.3	13.8	15.2	15.3	13.7
HUNGARY	18.5	15.2	12.5	10.5	9.4
ENGLAND	23.4	22.6	18.4	14.9	12.3
AUSTRALIA	17.6	15.0	13.1	11.1	9.1
USA	14.7	13.0	12.5	12.7	12.9

* average for 4 years

Source : World Health Statistic, Vital Statistic and causes of Deaths, WHO, Geneva, 1982

Asian countries, namely Japan and Singapore, which used to be underdeveloped nations in the early 1950s have experienced very rapid mortality declines and have reached mortality levels as low as, or nearly, as low as those in the developed countries. Referring to Japan , the stillbirth ratio per 1000 births was appreciably high with 31.5 per 1000 births in 1950 declined rapidly to almost half the original rate that is 14.1 per 1000 births in 1971 and continued to decline below 10 per 1000 births by 1975. For Singapore, the drop is quite significant and reached below 10 per 1000 births by 1970 from 17.0 in 1950-1954. {4}.

Hungary, being an example of a communist country also showed a decreasing trend and reached the rate of below 10 per 1000 births by the year 1970. Developing nations like Kuwait, Sri Langka and Burma record the decreasing trends of stillbirth rates but the values were still above 10 per 1000 births toward the end of 1974 {4}.

1.4 Malaysian Trend

In Malaysia, data on population based studies or research specifically on stillbirth are not readily available. However, annual report released by vital statistics gives us some data concerning the problems of stillbirths in Malaysia.

Referring to table 3, it shows that the trend of stillbirth rates for Peninsular Malaysia have declined over time. In 1980s, the stillbirth rates have declined to 50% of their levels in 1960s. Then the rates continuously fell until it reached 9.1 per 1,000 births by the year 1990, that is over thirty years period of review {6}. Table 4 shows that, the decline in stillbirth rates is not uniform across states. For example, in 1980, the states which registered higher stillbirth rates than the national rate, in descending order were Pahang, Perlis, Kelantan, Terangganu and Kedah. The state with the lowest rate was Wilayah Persekutuan. In 1986, however, the states with stillbirth rates above national rate in ascending order were Penang, Negri Sembilan, Perak, Johore, Kelantan, Kedah and

TABLE 3: THE STILLBIRTH RATES FOR MALAYSIA FROM 1966-1990

YEAR	RATE PER ONE THOUSAND
1966	22.7
1970	21.8
1975	17.1
1980	15.5
1985	11.0
1990	9.1

Source: Vital Statistic Malaysia, various years.

TABLE 4: STILLBIRTH RATES (*) (PLACE OF RESIDENCE) FOR PENINSULAR MALAYSIA BY STATES FOR 1963-1986

STATE	1966	1974	1976	1978	1980	1982	1984	1986	1988
WILAYAH PERSEKUTUAN				12.4	10.9	7.8	3.8	3.9	5.0
SELANGOR	19.5	15.6	13.1	14.8	13.4	8.2	5.4	8.4	5.8
MALACCA	19.8	15.5	16.4	13.3	13.9	11.3	13.0	8.5	9.6
N.SEMBILAN	20.5	16.4	15.0	16.0	14.0	13.8	14.3	10.7	11.3
JOHORE	21.7	17.8	15.7	14.8	13.0	11.1	11.7	11.6	9.8
PENANG	21.0	1 . 5	13.8	12.5	13.9	12.6	10.9	10.6	9.8
PERLIS	27.1	24.0	17.1	20.3	15.9	13.1	12.2	15.2	9.5
PERAK	22.7	24.0	17.1	20.3	15.9	13.1	12.2	15.2	9.9
KEDAH	32.5	24.4	22.2	21.3	21.3	18.5	17.0	14.1	9.8
PAHANG	17.4	17.0	16.5	16.7	17.7	16.8	12.6	9.2	11.2
KELANTAN	21.3	22.4	20.0	18.2	19.2	16.7	14.5	13.1	12.0
TERANGGANU	30.0	28.2	24.3	19.3	20.9	18.5	15.7	10.1	9.8
PENINSULAR MALAYSIA	21.7	22.7	18.9	16.8	15.9	15.5	13.5	11.3	10.4

SOURCE : MALAYSIA VITAL STATISTIC, VARIOUS YEARS

Note : Stillbirth rate is per 1000 births

Perlis. Finally in 1988, all the states were higher than national except Selangor and Wilayah Persekutuan.

Table 5, shows that the stillbirth rates of the Chinese from 1972-1976 were consistently the lowest of the three races and the rates of Malays and Indians were very much higher than the Chinese. This is partly a reflection of the relative larger number of the Chinese who live in the urban areas where access to medical facilities is easier and the general standard of living is higher. Comparing the stillbirth rates of the Malays to Indians, it is lower than the Indians. As the years proceed, and as a result of the spread of rural health services to the rural areas and estates , the stillbirth rates among the Malays and Indians have declined at a faster rate than the Chinese.

The general decline in stillbirth rates in Peninsular Malaysia, may be due to the result of economic development and modernization. Improvement in nutrition, literacy, standard of living and the expansion of water purification and supply, sanitation and preventive health programs are directly related to the decline of perinatal death particularly the stillbirths.

TABLE 5-: STILLBIRTH RATES (*) (PLACE OF RESIDENCE) FOR PENINSULAR MALAYSIA BY ETHNIC GROUP FOR 1970-1988

ETHNIC	1972	1974	1976	1978	1980	1982	1984	1986
MALAYS	24.1	22.3	19.8	17.9	17.7	15.1	13.0	11.2
INDIANS	31.6	26.1	23.6	23.4	21.9	18.9	14.4	15.2
CHINESE	11.3	10.4	9.1	8.7	8.6	7.4	5.4	5.5

SOURCE : VITAL STATISTICS, VARIOUS YEARS.

* Per 1000 births

However this has to be proved through studies and research.

1.5 Stillbirths in Kedah Darulaman

Kedah Darulaman forms one of the states in Malaysia which has high stillbirth rates besides Kelantan Darulnaim, Pahang Darul Makmur and Terangganu Darul Iman. In 1980, Kedah Darulaman recorded the highest stillbirth rate in Malaysia while in 1986 it recorded the second highest. Then, every year Kedah Darulaman is either in the fifth or fourth top position among the states which record high rates of stillbirths {6}.

Specifically, the stillbirth rate in the state of Kedah Darulaman has a significant declining trend since the year 1971, as shown in table 5 {7}. Of course, the improvement of the level of stillbirth rates varies from district to district. The stillbirth rates for all the districts in 1971 exceeded 20 per 1000 birth . In 1981 majority of the districts except Langkawi, were generally noted to be above 10 per 1000 births . Finally by 1991, stillbirth rates of all the districts were less than 10 per 1000 births

TABLE 6: THE TREND OF STILLBIRTH RATES(*) FOR ALL DISTRICT IN KEDAH DARULAMAN FOR YEAR 1971,1981 AND 1991

DISTRICT	1971	1981	1991
LANGKAWI	34.5	20.6	4.6
KUBANG PASU	28.6	9.7	6.6
K.SETAR/PENDANG	30.2	11.2	7.2
K.MUDA/YAN	23.6	10.7	7.2
P.TERAP/SIK	29.7	19.5	12.9
BALING	25.5	19.2	9.6
KULIM/B.BARU	29.8	11.9	10.6
KEDAH STATE	32.6	14.7	8.2

SOURCE ; MATERNAL & CHILD HEALTH CARE, KEDAH DARULAMAN FOR THE VARIOUS YEARS

* Per 1000 births

except Padang Terap/ Sik and Kulim/ Bandar Baharu.

For thee past five years since 1987, in all the districts of the State of Kedah Darulaman, full effort has been geared towards strengthening health services, whether inside the organization or with the community. Certain aspects of services such as immunisation coverage, safe delivery, standard of nutrition and health education has shown much improvement, but the stillbirth rates and other mortality rates in certain districts such as Padang Terap/Sik, Kulim/Bandar Baharu and Baling are still high whereby room for improvements still exists.

1.6 Types and Causes of Stillbirths and Their Importance

Stillbirths can be classified into either fresh stillbirths or macerated stillbirths. The cause of death may be classified according to whether the death took place in utero before the onset of labour or during labour.

For the fresh stillbirths are usually related to

asphyxia while the macerated stillbirths are related to intra uterine deaths. The fresh stillbirths occur during the process of labour and the body of the foetuses are almost like the normally delivered foetuses. In case of the macerated stillbirths, the death had occurred more than one day prior to delivery and the body of the foetuses are macerated and sometimes disintegrated.

According to the report of a seminar on perinatal morbidity and mortality, Wo d Health Organization (WHO 1972) recommends that, since the cause and the time of deaths are inter-related, stillbirths as a component of perinatal stillbirths, be divided into :

a) ante-natal mortality : which have direct relation with ante-partum haemorrage and PET. Therefore with better management of pregnancy, improved ante-natal care and early diagnosis of pregnancy disorders can lead to the reduction of ante-natal foetal mortality.

b) intra-natal mortality: where the majority of deaths in post dated baby, low birth weight foetuses and prolonged labour. Hence, improvement in obstetric

technique, early identification of high risk foetus and increase in hospital deliveries can help reduce this types of mortality {8}.

1.7 Factors Contributing To Stillbirths.

1.7.1 Maternal Age

There is a relationship between pregnancy wastage and maternal age. Pregnancy wastage is high at the adolescent age, decreases slightly at age of twenties then it become stable until it rises with the age of the pregnant women and the rise becomes increasingly steep as they approach the end of the child bearing period. Studies such as by B.D.Navidi Kasmaii , show that stillbirth rates were highest for the oldest women and lowest for those in twenties and when plotted on a graph shows a J-shaped curve {9}.

For an adolescent pregnancy, **inadequate early weight gain** (up to 24 weeks) results in increased risk of small gestational age (SGA) infant which in turn results in increased possibility of the

occurrence of stillbirth. In his study Rosso P, has shown that, this risk of inadequate weight gain is not diminished even by the later adequate or compensatory gain to the level recommended by the adult {10}.

The problem of early inadequate weight gain is closely related to fat disposition among the adolescents who are themselves growing up during the pregnancy. This has been shown by a study done by Naeye R.L , that linear growth during the pregnancy has been due to the result in a competition between the mother and the foetus for nutrients. {11} .

Young M in his study has concluded that inadequate weight gain in the early pregnancy may also interfere with the growth of placenta or with its structure and functional development {12}.

Another factor which may result in the incidence of stillbirth is obstruction of labour due to caphalo-pelvic disproportion. Among the adolescent group, Horon I.L. in his study, found that the occurrence rate of caphalo-pelvic disproportion was 4.2% while it was 3.1% among

the adults. {13}

Besides inadequate early weight gain and caphalo-pelvic disproportion, social-related problems such as to be unmarried, drug abuse, cigarette smoking and initiation of perinatal care later in pregnancy are more common in the adolescent pregnancy which further increase the risk of pregnancy wastage. As reported by Haron I.L., the adolescents were more likely to be clinic patients, to be unmarried, shorter in stature, had lower pregnancy weight and initiated perinatal care later in pregnancy than the older women. He concluded that their greater risk in pregnancy than older women are mainly not due to size but due to socio-demographic characters {13}.

Mac Cnarney ER in his study among young mothers had stated that the premature delivery, intra-utreine growth retardation and precipitous labour are all risk factors of the teenager's pregnancy which contribute to the possibility of occurrence of stillbirth. She also stated that in New York, the incidence of teenage pregnancies is often associated with other social problems such as drug abuse, cigarette smoking, prenatal

genital infection and poor nutrition {14}.

Old maternal age and grand-multiparity have been associated with higher risk of pregnancy outcomes and infant death in both high and low mortality countries. Partly it is due to the confounding effects of socio-economic status since women who continue childbearing at older age and who reach high parities include disproportionate number of poor and uneducated women with limited access to both family planning and maternal and child health service.

It is generally accepted that, pregnancy complications such as hypertension, pre-eclampsia and diabetes mellitus lead to the occurrence of stillbirth. Hansen J.P.in his literature review of Old Maternal Age and Pregnancy Outcome, which includes several studies from different countries and involving different maternal age groups, has pointed out that there are important and specific risks related to pregnancies as mentioned above for older women as compared to younger ones. These include complication such as hypertension, pre-eclampsia and diabetes mellitus are not only more common among the older group but it also resulted with a greater risks for the older group

ending with more frequently in fatal demise {15}.

Another study by Kirz D.S,also showed that there was a statistically increase in the incidence of diabetes and hypertension among the parous pregnancy women whose age were more than 35 years while in nulliparous pregnant women there was also an increase in the incidence of diabetes among whose age were more than 35 years old {16}. In terms of labour complication for all parous pregnant women, he also found that the late deceleration pattern were more common among the age group more than 35 years old {16}

Other aspects which are related to the incidence of stillbirth are further supported by Spellacy W.N. in his study of Pregnancy After 40 Years Of Age, that for the older women group there was a significant increase in placenta previa and they were more obese and had more hypertension and diabetes mellitus {17}. In addition , Tuck S.M had described the other expected complications which lead to stillbirth such as fibroid, malpresentation, prolonged labour, instrumental delivery, premature labour, intra uterine and growth retardation {18}.

As reported by Hansen, there is very strong evidence that stillbirth rate increases with the maternal age to an approximately two fold risk for women in their mid to upper thirties and to a three to four fold risk for those in the early forties. The level may dramatically increase in relation to different socio-economic groups and countries { 15 }.

The mechanism for which the evidence is strongest is the effect of older maternal age on the congenital abnormalities associated with chromosomal damage and this can result in stillbirth. In a study done by Israel & Deutschberger (1964), who examined the age factors in pregnancy outcome among a sample of 22,201 unselected women from institutions in the Collaborative Project on Cerebral Palsy, arrived at the conclusion that there was a steady increase in congenital anomalies with increasing maternal age and an increase in neurological abnormalities among infants of the youngest and oldest mothers in their samples {19}.

In the Malaysian context, in a survey done by Siti Norazah et all, it was surprisingly discovered that the highest proportion of mothers at the time of perinatal death (58% were stillbirth) fell in the 25-29 years age range. The reason for this trend is because the highest fertility rate is among the mothers who are in the 25-29 years of age interval {20}. In Thailand at Chulalungkon Hospital, it was also found that the highest proportion of stillbirths (60.2 %) occurred in 20-30 years age groups {21}.

1.7.2 Parity

The incidence of stillbirth is higher not only at the extremes of age but also parity. The higher incidence of stillbirths is due to the higher rate of toxemia, placenta disorders, malpresentation and haemorrage among the grand multiparas. Oxorn in his study has shown that those complications were more common among the grand multiparas. When Oxorn compared the grand multiparas over 40 to the women over 40 with 2 or 3 children, he found that among the older grand multiparas there were relatively higher risk of toxemia, occiput posterior and transverse

position, caesarian section and mid forceps deliveries {22}.

However, comparing the grand multiparas over 40 to the women of low parity over 40, he concluded that the high parity rather than age was of greatest importance as a cause of complications of pregnancy which may result in the occurrence of stillbirth. His analysis suggested that parity alone seemed to effect the foetal and maternal mortality, but for many other complications, age and parity working together have a greater effect than parity alone {22}

In a survey done by Israel and Blazer, they reported that higher rate of aneamia, pre-eclampsia, chronic hypertension, placenta disorder, and uterine rupture were among women of parity 7 and higher {23}. These factors are related to the incidence of stillbirth.

Nelson and Sandmayer through their study also showed that, there was higher incidence hypertensive disease, abruptio placentae, placenta previa, retained placenta and breech presentation among the grand multiparas {24}.

Pyke (1956) in England concluded that , a women who has had five children appeared to have about three times as great a chance of developing diabetes mellitus as a woman who had none {25}, and complication in pregnancy associated with higher incidence of stillbirths.

1.7.3 Birth Interval

Studies have shown that pregnancy wastage is highest for interval of less than one year, falls for interval between 1 and 2 years and between 2 and 3 years and then declines more gradually for interval between 3 to 4 years. Study by B.D.Navidi-Kasmii, has shown that when the risk of poor pregnancy outcome is plotted against preceding birth intervals formed a reversed J-shaped curve.

In a study done by Eisner V, it is seen that short inter-pregnancy interval is risk factor for the occurrence of low birth weight foetuses {26}, which may end as stillbirth. Low birth weight is usually related to prematurity. It is seen in a study by Spiers P.S., that the prevention of pregnancy interval of less than six months would

reduce the overall prematurity and infant death rate among later-born singleton by 5.1 and 6.3 percent, respectively { 27 }.

While in another study by Liaberman E, stated that highest risk of **intra uterine growth retardation** (IUGR), which is closely related to **stillbirth**, occurred in women who had an inter-pregnancy interval of 3 or fewer months. The risk of IUGR decreased with increasing inter-pregnancy interval up to approximately 24 months and it was found to be the lowest when the inter-pregnancy interval was 24-36 months. When the inter-pregnancy interval was longer than 36 months, the rate of IUGR was slightly higher, except for those women whose inter-pregnancy interval was more than 96 months { 28 }.

The reason for the occurrence of foetal growth retardation is related to some mechanism interfering with the development in early pregnancy of the utero-placenta circulating system, as has been shown by John G Heage in his study, that short interval of pregnancy result in **inadequate recuperation from the earlier parturition leaving structures too weak to support the next pregnancy. These may be also be**

problems with reproductive tissue such as cervical incompetence leading to premature delivery {29}.

1.7.4 Maternal Weight

One of the causes of stillbirths is low birth weight. The maternal weight in turn, has certain influence on birthweight. In a study by M. Yadaf et all, they have shown that the heavier the weight of the mother the greater the birthweight {30}.

During normal pregnancy the desirable weight gain is between 22 to 33 pounds, and Taffel S.M.,in his study mentioned that this normal weight gain depends on the height and prepregnant body weight {31}. Talking about the relationship between the maternal weight and pre-eclampsia, Edward et all had reported that there is increased risk of pre-eclamspsia in obesity to about 3 times higher than in control group matched for age and parity {32}. In another study by Gross et all, he also concluded that glycosuria plus a diabetic glucose tolerance curve occurs more frequent during pregnancy in obese women compared with lean

control { 33 }.

In diabetic mother, unknown factors may well lie behind the very constant finding of an increased incidence of foetal macrosomia because high birth weight is commonly associated with increased risk to the foetal and the mother. The increase in post-term delivery are more common among the obese mother {33}.

1.7.5 Foetal Weight

In a study by Seed J. W, it is seen that infants who are small for gestation age are at an increased risk of death during the perinatal period. Perinatal mortality rate was eight times higher than those for infants whose weights were appropriate for gestational age {34}. In addition such infants also suffered more frequently from prenatal, intrapartum asphyxia and meconium aspiration which lead to stillbirth {34}. It is generally accepted that the survival of foetus is very much related to the weight of the foetus. In a study done by Eastman NJ, it is seen that when weight gain and prepregnancy weight are both high, the foetus will be large, that is they

become additive in their effect, but when they are both low, the size of the foetus will be small. Finally when one is high and the other is low, there will be average size baby {35}.

Thus, it has been suggested that the nutritionist should take suitable measures to augment the weight of a woman whose weight has not gained the average amount of approximately 10 pounds at the twentieth week as she should be regarded as a high risk case {35}.

1.7.6 Maternal Work

As has been mentioned earlier, prematurity is one of the common causes of stillbirth. It was found in a study conducted by Mamella N, that manual labour involving standing, carrying heavy load and assembly line work were associated with higher prematurity rate than when pregnant women were employed in professions, such as in administration or as clerical work {36}.

While in another study done by Macdonald AD,it was found that the pregnant women who continued to work outside the home in managerial, clerical

and sales positions had no increased rate of premature delivery or low birth weight infants while those who served as chambermaid, cleaners, waitress or in heavy manufacturing position had an increased rate of premature delivery and low birth weight infants {37}.

With regard to mothers occupation, study done by Fox indicated that, the women in U.S.Airforce who were required to continue on active duty until delivery had increased risk both of toxemia and premature delivery compared to those who were able to modify or quit their work during pregnancy {38}.

2.7 Pregnancy and Nutrition

A study done by Murphy et al, involving 54,382 singleton pregnancies, casted a new light on the meaning of high booking heamoglobin value. High as well as low booking heamoglobin are associated with increased risk of perinatal death, preterm delivery, and low birth weight. Although the association between aneamia and adverse epidemiological factors (low social class, extreme of maternal age, smoking ect.) can partly

explain the outcome in low heamoglobin category, no such relation was observed for the high heamoglobin mothers {39}.

In a study done in 1944, involving 11,000 women in poorer areas of England and Wales to whom supplementary diet of dried milk, ovaltine and iron rich food were provided, it had been found that the particular group of women had a lower perinatal death than the control (5.9% vs 7.1%;x2 = 12.48 p< 0.001) {40} .

Folate is important during the period of the very early stage of pregnancy, when the embryo is attempting to implant successfully during which its cells are dividing at an enormous rate in order to form organ. Failure to supply sufficient nutrition especially folate at this stage, might lead to the impairment of either or both of these processes, leading to very early abortion or foetal malformation {41}.

Although the effect of maternal nutrition on the developing embryo may be due to a number of vitamins deficiencies acting together to interfere with the closure of the neural

tube, Renwick (1982) pointed out that the main cause in United Kingdom at least, is a lack of folic acid {42}.

It can be generally stated that women who had taken vitamin showed reduce rate of early abortion, which were only two-third of those in women who had not. Roughly the same hold true for intake of minerals {43}.

1.7.8 Maternal Habits

A) Smoking

Smoking during pregnancy is an important modifiable risk factor for low birth weight and is also correlated with increased risk of early foetal loss {44}. Study by Kleinman J.C, projected that if all the pregnant women stopped smoking, the number of foetal and infant deaths would be reduced by 10% {45}. In a study done by Weinwright R.C showed that, the earlier the pregnant women give up smoking, the lower the excess risk of having a low birth weight infant while smoking cessation early in pregnancy reducing the risk to the same level as that of

non-smoker {46} .

The association between smoking by the mother and retardation in growth of the foetus could be due to a direct effect on the foetus or due to indirect effect mediated through a restriction of mother's own weight gain or due to both. Smoking also has an adverse effect on the appetite and thus limiting the weight gain in the smoking mother {47}.

B) Caffeine;

Studies have suggested that caffeine consumption was associated with spontaneous abortion, low birth weight, and short gestation. However confounding variable such as smoking, alcohol intake and socio-economic factors were involved. After controlling those factors, no relationship between adverse effects and caffeine ingestion was observed {48}.

8 **The pattern of ante-natal care:**

Antenatal care in public service, generally is carried out by a range of professionals including the midwife, the staff nurses, the general practitioner, the government doctor and occasionally the obstetrician. The latter is usually involved, when there are major problems of the mother or foetus such as maternal diabetes or hearth disease, or intrauterine growth retardation of the foetus.

The main functions of antenatal care may be considered under six headings :

a- The screening and prevention of maternal problems.

b- The screening and prevention of foetal problems

c- the management of maternal symptomatic problems

d- The management of foetal symptomatic problems

e- The preparation of the couple for childbirth

f- The preparation of the couple for child rearing

There are few objective measures of effectiveness of antenatal visits for the measures of the outcome. Hall et all. (1980) suggested a concept of productivity, examining the proportion of routine visits which resulted in identification of the first time of any major problems {49}. These workers took pre-eclampsia and malpresentation as their marker problems. From this Hall (1989) derived logical schemes of minimum care for a normal primary gravida and minimum care for a normal multigravida {50}.

Good antenatal, intranatal care is necessary in order to get healthy and viable foetus throughout the course of pregnancy. Any maternal complications should be treated, and the progress of the pregnancy should be carefully monitored

For normal pregnancy, the expecting mother should should have an average of 8-10 antenatal visits as recommended by the Ministry of Health, Malaysia.

A report by World Health Organization (WHO) in 1972, stated that an abnormal obstetric history, namely previous abortion, perinatal death, low

birth weight babies, pre-eclampsia and ante-partum hemorrhage indicate an increase risk of perinatal mortality in the subsequent pregnancy {51}.

Later in 1978, WHO reported that other pre-existing disease such as diabetes, renal disease, renal disease, hypertension or aneamia also increase the risk of perinatal mortality (including stillbirth) {52}.

As a conclusion, the importance of antenatal and intranatal care should be dealt with seriously. With lower birth rates and smaller family size, parents expect each child to be perfect and are upset when this is not so. Obstetrical and the co-workers can assist this process by the early detection and correction of foetal problems.

1.9 Purpose of the Study

The author had been working in the district of Baling as Medical Officer of Health for five years, that was from 1987 to 1991. During his

work there, he noted that the health indicators of the district namely the mortality rate were not satisfactory especially the stillbirth rates.

In 1989, Baling District had begun to implement a special maternal and child health program and that particular year, Baling had been selected as the place for the pilot project. Since then, the health indicators for the district are improving except the infant mortality especially the stillbirth which is a component of perinatal deaths.

Hence, the author chose to study stillbirths in the District of Baling hoping to identify some of the factors associated with stillbirths that cab be useful in the prevention of stillbirths. Being the manager of the district for the past five years, the author is quite confident that all the required data will be completely and easily available in fulfilling the study's needs.

: OBJECTIVES:

2.1 : General Objective

To identify some of the factors associated with stillbirths in the District of Baling, Kedah Darulaman for the year 1987 to 1991 so as to be able to make some recommendations for reduction of stillbirths.

2.2 : Specific Objectives

1. To determine the prevalence of stillbirths in The District of Baling within the period January 1987 to December 1991.

2. To describe the distribution of stillbirths in Baling district according to the operational areas of Kuala Ketil, Kupang, Tawar, Parit Panjang,Baling/Bongor,Malau and Kg Lallang.

3. To describe the distribution of stillbirths in Baling District in relation to socio-demographic factors;

    1. Family Income.
    2. Occupation.
    3. Communication.

4. To describe the distribution of stillbirths in Baling district in relation to the following maternal characteristics :

    1. Age
    2. Parity
    3. Birth Interval
    4. Occupation
    5. Habits

5. To describe the distribution of stillbirths in the Baling district in accordance to the following maternal conditions during pregnancy :

    1. Preeclampsia
    2. Diabetes Mellitus
    3. Aneamia
    5. Venereal Disease

6. To describe the distribution of stillbirths in Baling district in relation to the following foetal characteristics :

    1. Birth weight.
    2. Cause of Death

7. To describe the distribution of stillbirths in Baling district in relation to characteristics of delivery :

    1. Place of delivery
    2. Birth attendant
    3. Complications during delivery
    4. Decision maker for place of delivery.

8. To describe ante-natal practices of mothers in Baling disrict who had stillbirths :

    1. Number of ante-natal visits.
    2. Outcome of visits
    3. Compliance to ante-natal visit.

9. To assess the ante-natal care activities given by the health staff :

    1. Referals to doctor.
    2. Home visits.
    3. Ultra Sound Diagnostic Procedures.

10. To describe the management of the following conditions during pregnancy:

    1. Aneamia.
    2. Preaclampsia.
    3. Diabetes Mellitus.
    4. Venereal Disease

11. To give some recommendations based on the findings in order to reduce the incidence of stillbirths in the district of Baling.

3 : METHODOLOGY;

3.1 Study Design

This is a descriptive study of stillbirths using secondary and primary data. Main source, however, is the secondary data extracted from ante-natal card (KK/1/74 - Pin 2/82 - see appendix 1) and standard investigation forms (RA/MCH/ML/4B/80 - see appendix 2) designed by the Ministry of Health that have been in use since 1980. It is necessary to use both these records as certain relevant data that is not available in one could be extracted from the other.

Antenatal card contains information on maternal characteristics, medical and obstetric history, prenatal and obstetric care and outcome of delivery. Investigation form contains details about the causal factors relating to stillbirths.

Primary data was collected by interview of mothers who had experienced stillbirths. This was to obtain information on the socio-

economic status of the mothers that is not available from the secondary data as well as to get information on selected habits and opinion of mothers.

3.2 Preparation

The study design and the proposal was prepared in February 1992. A request for the permission to conduct the study was forwarded to the State Director of Medical and Health Services of Kedah Darulaman. Permission to utilize the data collected by the district office was sought and granted.

3.3 Study Population and Sampling

Study population includes stillbirths recorded at various government health facilities in the district of Baling. Baling has seven health facilities that include 1 Maternal and Child Health Clinic, 2 Health Centres and 4 Health Sub Centres. Stillbirths delivered by women in the operational areas of health centres are recorded at respective health centres.

Study sample includes all stillbirths delivered to resident mothers that were recorded from 1st January to 31st December at all the seven health facilities in the district. Only stillbirths delivered by resident mothers are included while those of non-resident mothers are excluded. This is because non-resident mothers come to the district to deliver, usually to parents home-town and return to their places a few days after delivery. Their antenatal records are not available in the district.

3.4 Sample size

There were 186 stillbirths recorded in the district of Baling from 1st January 1987 to 31st December 1991. During the period of five years, 17,718 births were recorded in the study area. Out of the 17,718 babies born, 186 were stillbirths of which 126 were born to resident mothers.

Distribution according to operational areas of the 7 health facilities are as follows :

OPERATIONAL AREAS	NO OF STILLBIRTHS
1- PKB Kupang	24
2- PKK Kg Lallang	25
3- PKK Tawar	24
4- PKK Parit Panjang	17
5- PKK Malau	13
6- KKIK(Baling)	13
7- PKB Kuala Ketil	9
Total	126

3.5 Data Collection

3.5.1 Secondary Data Collection

Antenatal cards and investigation forms of the 126 stillbirths were located from the seven health centres and were collected centrally. We were fortunate to locate all the 126 antenatal cards of the mothers and all the

126 investigation forms.

A data entry format was created to extract data from the records (see appendix 3). A group of seven Staff Nurses assisted in the data extraction.

3.5.2 Primary Data Collection

All the 126 mothers were traced and contacted. Primary data was collected by interview of mothers using a questionnaire to obtain information on the socio-economic characteristics of the mothers and also to extract unobtainable data from the prenatal records and investigation forms. The questionnaire was pretested prior to the implementation of the data collection.

To avoid biasness, the Staff Nurses working in a particular operational area were instructed to collect data from the mothers in a different operational area without identifying themselves as a Ministry of Health personnel. Permission from the State Director of Health was sought to enable the Staff Nurses to ware ordinary clothing instead of the usual

uniform.

All the interviews were conducted at homes of the mothers. This home interviews had two main objectives. Firstly, this was a way of double-checking some of the information collected in the prenatal cards and investigation forms for the stillbirths. Secondly, all the informations relating to home and other environmental conditions could be gathered as well as observed.

3.5.3 Training of Staff Nurses

All the seven Staff Nurses who assisted in data collection were trained at a special briefing to ensure the maximum uniformity in entering the data from all the ante-natal cards and the investigation forms.

They were also trained to ensure the uniformity in conducting the interviews and in understanding the objectives of each question.

3.6 Data Editings and Corrections

The quality of data depends very much on the provision made for editing and correcting the answers. There is no universal rule for this process. In case of this study the data were edited at three stages, while being gathered in the field, when captured and at the onset of electronic data processing.

At the time of gathering, data were edited after the mother had been interviewed at home. At the end of the day all the completed questionnaires were forwarded and checked for internal consistency and unrealised mistakes. At the time of computer capture, the number of errors were minimized by coding in the data for each question.

3.7 Limitations and Errors

a. Sampling bias; There is a possibility of the existence of pregnant resident mothers who did not attend any antenatal clinic and ended with stillbirths, thus are not included in this study.

b. Interviewer bias; For consistency and accuracy of the data collection, a single person to collect all the data has been most ideal. However due to constraint of time and the current heavy task of the author, he had to rely partially on the Staff Nurses to help interview the mothers. Involving more persons means introducing more biasness in asking the questions. Anyway every effort was made to ensure the maximum uniformity by giving special briefing sessions before implementing the questionnaires.

c. Recall bias : For collecting information on the past events is that, it is based on the respondent's recall and memory which may not be accurate. As such, the accuracy of data collected may be questionable.

d. As a result of familiarity and aquiantance for some particular Staff Nurses, it would introduce some bias in the response from the study subjects. However an effort was made to minimize this effect by not wearing the daily uniform and by identifying themselves as researchers.

e. Use of secondary data has its drawbacks of inaccurate recording and under recording.

f. As the data was obtained from the ante-natal cards and investigation forms, there are possibilities of under recording, wrong recording and classification, inaccurate diagnosis eg macerated stillbirth instead of fresh stillbirth.

3.7 Operational Definition of the Variables Studied

1. Birth weight: Birth weight that is recorded on the ante-natal cards. The practice of recording birth weight on the card was that for babies who were born in hospital, they were weighed during the first twenty four hours with calibrated scales. For home delivered, they were weighed by the midwife after the delivery. Birth before arrival (BBA) babies were also weighed by midwifes on her arrival at home.

2.Gestational age: It was calculated in complete weeks from the first day of last menstruation (LMP) to the date of birth.

3.Maternal age: It was expressed in years.

4.Family income: The income was expressed as minimal wages or income per month both from the husband and wife (if wife working).

5.Husband's occupation: Is defined as the main occupation from which the income was derived.

6.Maternal weight at the beginning of pregnancy was expressed in kilograms, based on the figures given in the ante natal cards.

7.Maternal weight at the end of pregnancy was obtained from the antenatal card in accordance to last ante-natal visit.

8.Weight gain during the pregnancy was the difference between maternal weight at the end and at the beginning of the pregnancy.

9. Parity: is defined as the number pregnancy plus the occurrence of abortions.

STUDY AREA ; DISTRICT OF BALING;

4.1 Location

The State of Kedah Darulaman is the sixth largest state in Peninsular Malaysia with a land area of 9426 sq. km. It is located between the latitude N 5 05' and n 632' and between the longitude E 99 39, and E100 018 '. It is one of the northern border states in Peninsular Malaysia. Her boundaries are Thailand to the north, Straight of Malacca and Penang to the east, Perak to the south and to the west (see figure 1).

Baling is the second largest district in the State of Kedah Darulaman, situated on the eastern side of The State of Kedah Darulaman bordering Perak Darul Ridzwan (see figure 2). The District of Baling is being bordered by Thailand on the eastern side, Sik on the north-east, Kuala Muda on the north-west and Kulim on the south west. The district of Baling comprises of eight subdistricts (mukim), namely Kupang, Tawar, Siong, Teloi Kanan, Pulai and Baling/Bongor. In term of health services, it is also subdivided into seven operational areas in

FIGURE 1

MAP OF PENISULAR MALAYSIA SHOWING THE STATE OF KEDAH DARULAMAN

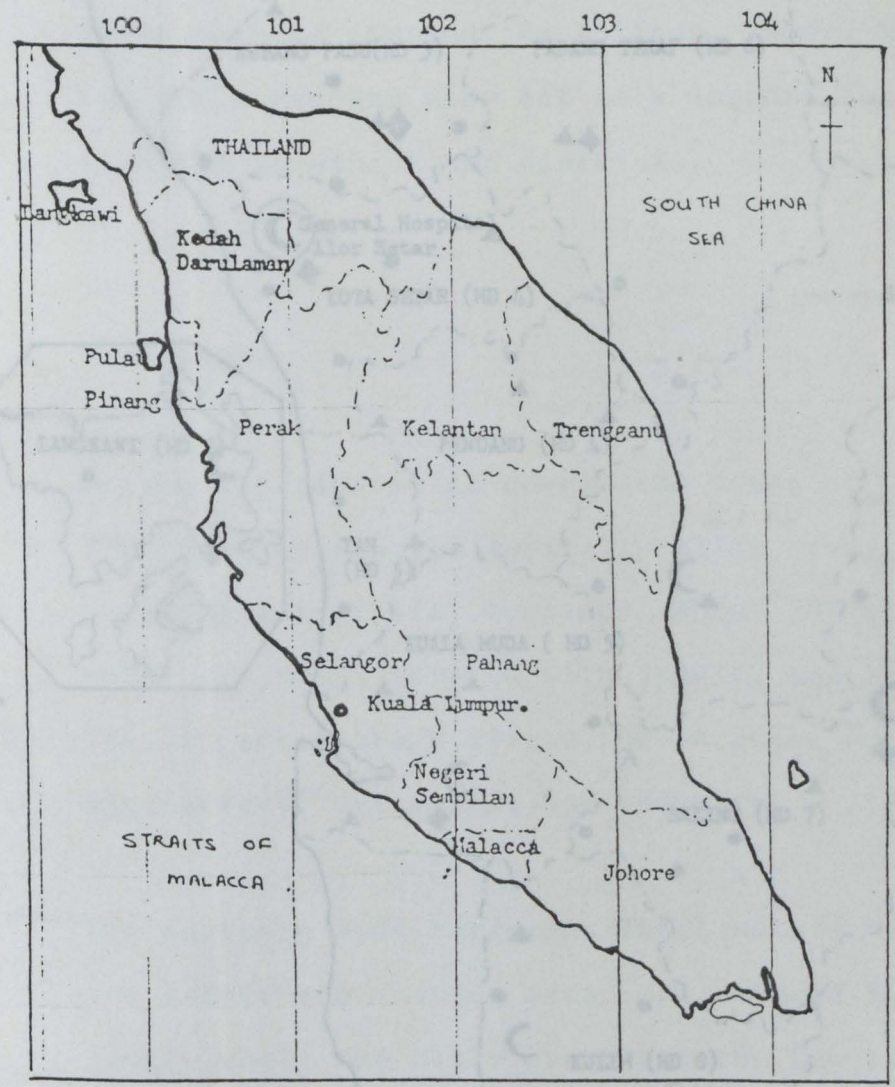
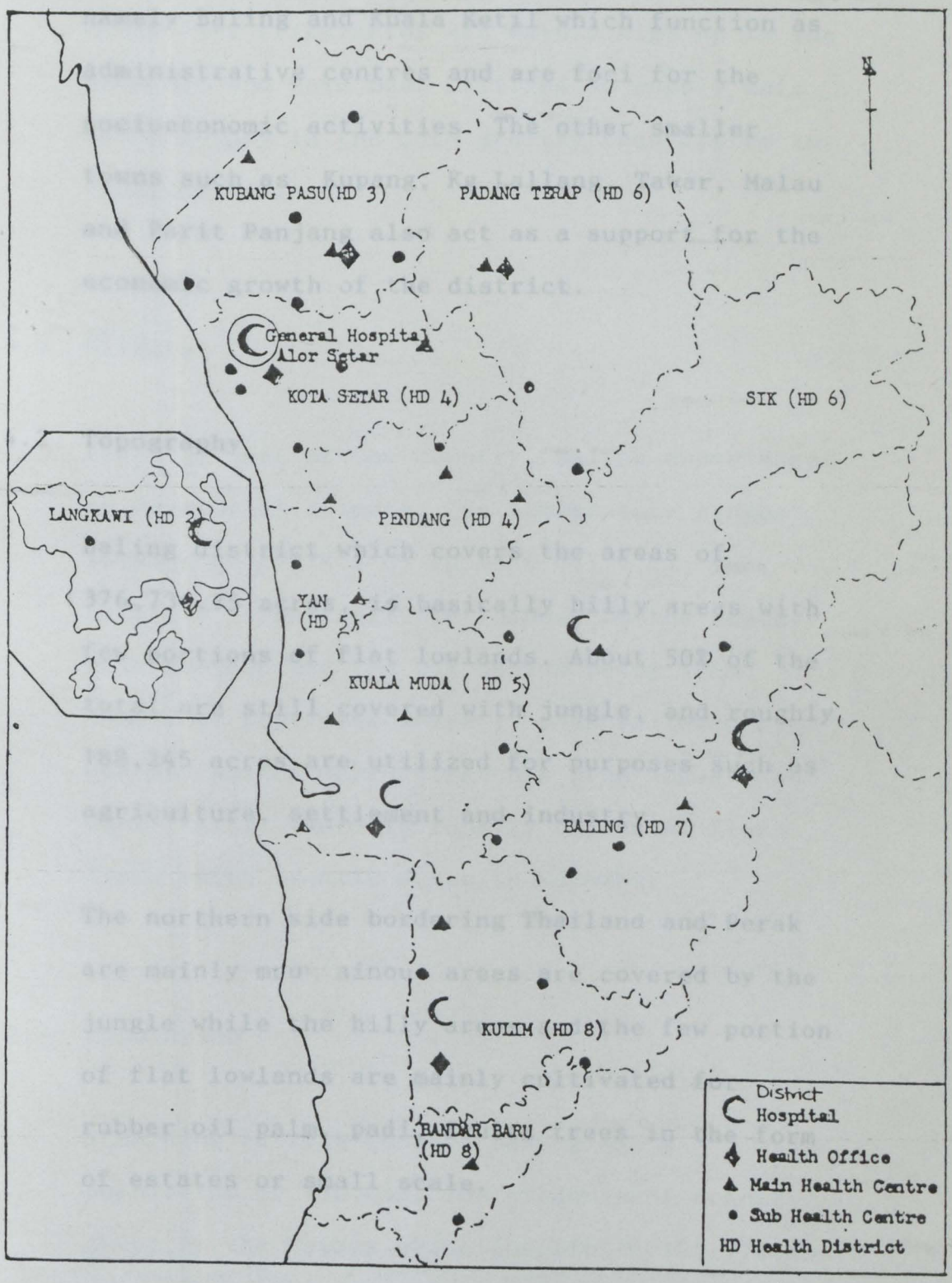


FIGURE 2

MAP OF KEDAH DARULAMAN SHOWING THE DISTRICT OF BALING



in accordance to the subdistricts.

There are two major towns in the district, namely Baling and Kuala Ketil which function as administrative centres and are foci for the socioeconomic activities. The other smaller towns such as Kupang, Kg Lallang, Tawar, Malau and Parit Panjang also act as a support for the economic growth of the district.

4.2 Topography

Baling district which covers the areas of 376,736.75 acres, is basically hilly areas with few portions of flat lowlands. About 50% of the total are still covered with jungle, and roughly 188,245 acres are utilized for purposes such as agriculture, settlement and industry.

The northern side bordering Thailand and Perak are mainly mou[illegible]ainous areas are covered by the jungle while the hilly areas and the few portion of flat lowlands are mainly cultivated for rubber oil palm, padi, fruits trees in the form of estates or small scale.

The Baling river is the main river in the district which flows from the eastern mountainous area westward to join the Kuala Muda River. Its tributaries are mainly high up in the mountain and have been utilized to supply safe water supply in the form gravity feed system to numerous villages.

4.3 Climate

Like the rest of the country, Baling experiences an equatorial climate. The temperature ranges between 65 F (18.3 C) to 93 f (33.9 C). The rainfall is partially influenced by the south west monsoon and the wet season being from August to September which is then followed by the dry season which stretches from January to early April. There is locally called as flash flood which usually occur in November.

4.4 Population

According to 1988 census, Baling has a population of 130,053. The predominant ethnic group is the Malays which costitutes 106,776 or

82.10%. This is followed by the Indians which made up of 10,906 or 8.39% and then by the Chinese which constitutes 10,456 or 8.04%. The other ethnic groups such as Siamese has a population of roughly 1,915(1.47%) {53}.

4.5 Economy

Being second poorest district in the State of Kedah Darulaman, agro-based activities constitute the major occupations which involve 77% of family households.Specifically, 45% work as rubber-tappers, 16% work as padi-planters, 14 % as orchard-based activities and 23% work as animals rearers. The remainder 23% either work as government servants or in the private sectors {53}.

The newly opened industrial area near Baling town has attracted several investors and manufacturers and provides extra employments to the population particularly among the adolescents.

Regarding the land usage, 136,477 acres are

utilized for agricultural purposes, 234 acres settlement and living purposes, 50 acres for industrial and business purposes while 51,484 acres for miscellaneous purposes{53}.

In term of economic status of the population, a short study involving 1493 households had been done in 1991 which showed that 74.1% of them had a monthly income of less than $300.00. These particular groups are composed of the families who solely depended upon the agro-based activities.

4.6 Communication

A good system of road networks connects the district to the neighboring districts as well as between the small towns situated in the various subdistricts. Construction of mini tar and literite roads interconnect the various the villages.

The future planned East West Highways connecting east coast and the west coast of Malaysia will be passing through the Baling District and this will further boost up her economy.

4.7 Religion and Traditional Belief

Islam is the main religion which is mostly practiced in the district of Baling. Baling is one of the district of Kedah Darulaman in which has most of Malays population possess strong religious background. Beside that their cultural heritage are tightly bounded by traditional practices. The important role in the traditional medicine are being controlled by the traditional medicine man and the traditional birth attendant (TBA).

TBA are usually illiterate middle age women who had developed skills in delivering babies mostly by assisting at child birth. Tey generally have little knowledge of asepsis or of safe delivery technique and are often guided by values and norms which do not show much respect to scientific approaches.

Professor Paul Chen of University of Malaya had done some researches on the custom related to childbirth as practised by rural Malays into 4 categories;

a) The beneficial such as breast feeding, restriction on activities and movement of mother, local post-partum massage

b)The harmless including measure devises against evil spirit, are best ignored

c)The harmful, such as dietary taboos, the external manipulation of breech delivery need to be stopped and avoided{54}.

4.8 Health Service

The objectives of health service in Baling is to increase and maintain the health status of the people to enable them to lead better economic and social life. The services given through promotive, preventive, curative and rehabilitative cares and these services will be emphasized more towards the people in the rural areas.

The public health services in Baling District are provided by District Health Department of the Ministry of Health headed by the District Medical Officer of Health.

There are 6 health centres, 22 community clinics, 10 midwife clinics in the district of Baling, as shown in table 7 and figure 3. The doctor population ratio is 1.6 to 10,000 population. The medical officer of health is responsible for the overall operations of the health services in the district.

The District Health Office acts as the nucleus, provides and controls all the various activities which are going on in the district. It directly responsible for the Environmental Health services which includes provision of basic sanitary facilities such as safe water supply and sanitary pour flush latrine to the rural population, surveillance on the quality of drinking water, food quality control and vetting of housing plan.

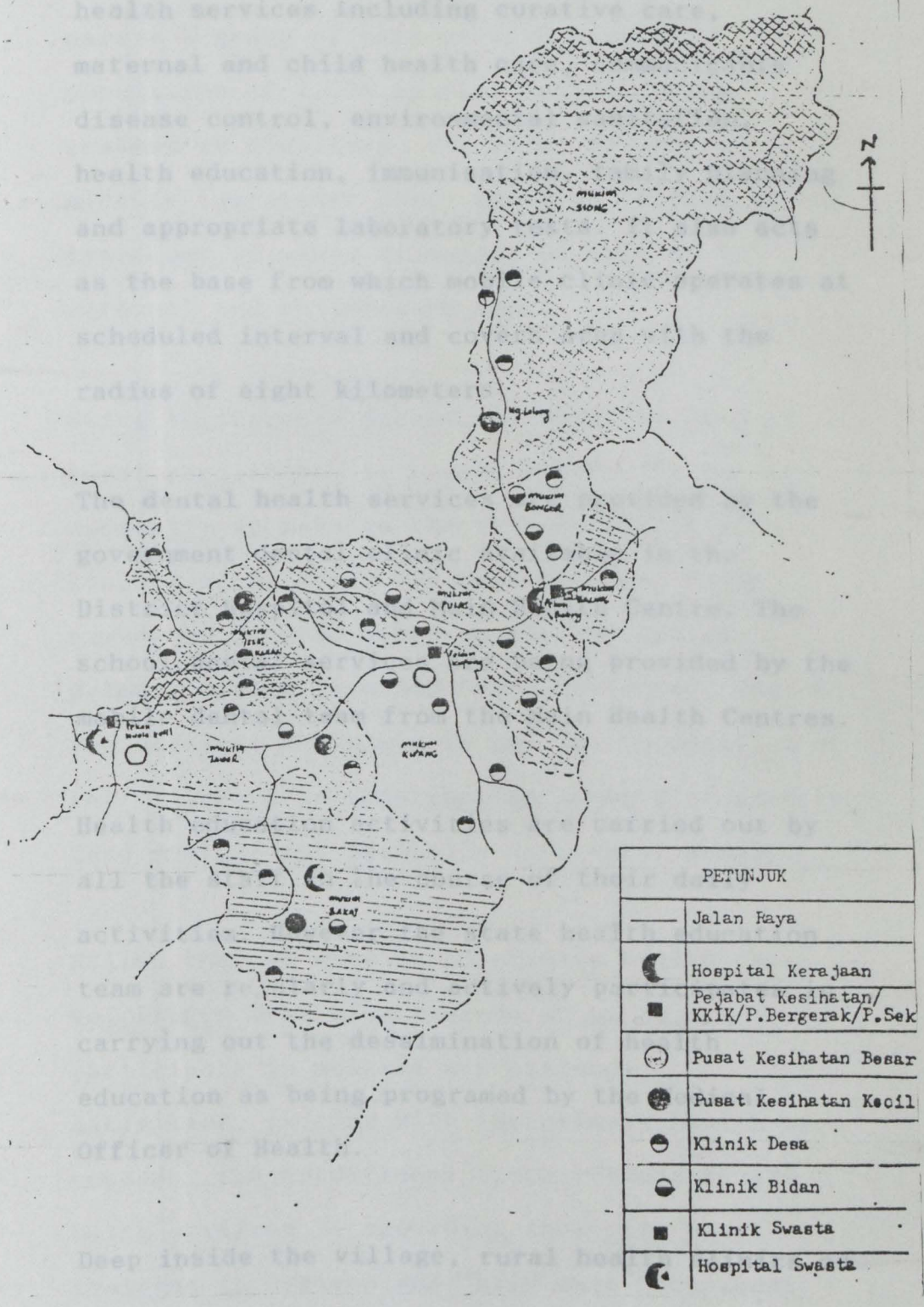
In addition to Environmental Health services, it also responsible for Epidermiological services which constitute activities under the vector born diseases control program, tuberculosis and leprosy control program, control of communicable diseases, epidermic and case investigations on

TABLE 7 HEALTH FACILITIES IN BALING DISTRICT 1991

HEALTH FACILITIES	NUMBER	LOCATION
DISTRICT HOSPITAL	1	BALING TOWN
DISTRICT HEALTH OFFICE	1	BALING TOWN
M.C.H.C	1	BALING TOWN
HEALTH CENTRE(P.K.B)	2	KUPANG KUALA KETIL
SUB-HEALTH CENTRE(P.K.K.)	4	KG. LALLANG TAWAR PARIT PANJANG MALAU
RURAL HEALTH CLINIC (KLINIK DESA)	22	AS LOCATED ON THE MAP
MIDWIFE CLINIC (KLINIK BIDAN)	10	AS LOCATED ON THE MAP
GENERAL PRACTITIONERS	8	-
ESTATE HOSPITAL	2	GROUP HOSP. BADENOCH HOSP

FIGURE 3

MAP OF BALING DISTRICT SHOWING THE HEALTH FACILITIES



disease outbreaks.

The health centres offer a broad range of basic health services including curative care, maternal and child health care, communicable disease control, environmental sanitation, health education, immunisation, family planning and appropriate laboratory tests. It also acts as the base from which mobile clinic operates at scheduled interval and covers area with the radius of eight kilometers.

The dental health services are provided by the government dental clinic available in the District Hospital and Main Health Centre. The school dental services are being provided by the mobile dental team from the Main Health Centres.

Health education activities are carried out by all the staff in the course of their daily activities. However the state health education team are regularly and actively participates in carrying out the dessimination of health education as being programed by the Medical Officer of Health.

Deep inside the village, rural health clinics or

midwife clinics play important roles. They are basically midwife clinica-cum-quarters and each of the rural health clinic or midwife clinic serves a group of village with a total population of 2,000 people. Besides being trained in midwifery, the rural health midwife (Jururawat Desa) are also trained in the treatment of minor illnesses as well as in maternal and childhealth care.

Owing to increase demand, to meet the need of rural population, it become impera- ve for the community to take on the responsibility of looking after their own health needs. Hence number of program based on the concept of primary health care had been introduced. One of the earliest moves was to get the cooperation of the villagers in constructing numbers of gravity feed systems for partially safe water supply.

Beside that as many as 30 primary health care volunteers were also trained so as to participate in malaria surveillance activities. In line with the primary health care concept, the traditional birth attendants are being utilized by providing them with basic training in hygiene and child care techniques

bringing them closer to the health care personnel and creating rapport between them and trained workers.

4.9 Health Statistic

Table 8 shows the vital statistic of Baling district, State of Kedah Darulaman and Peninsular Malaysia in 1989. Almost all the mortality are higher than state and national level. Eventhough the stillbirth rate is lower but it does not consistently lower compare to other years

4.10 Delivery Patterns

The delivery distribution in relation to the birth attendant for Baling District in 1987 to 1991 is shown in table 9 . It is found that the number of delivery by hospital staff is increasing but the delivery by the government midwife is decreasing. This indicates that the mothers awareness regarding the importance of hospital delivery is improving.

The number of delivery conducted by the

traditional midwife is significantly decreasing. Hence the percentage of the safe delivery has reached more than 95% of the delivery. In addition the percentage of birth before arrival has also decrease tremendously.

able 8: Vital Health Statistic of Baling, Kedah Darulaman and Peninsular Malaysia, 1990

Vital statistic	Baling	Kedah	Pen Malaysia
Crude Birth Rate @	27.4	24.9	27.0
Crude Death Rate @	5.3	5.0	4.9
Stillbirth Rate *	4.5	10.6	7.6
Infant Mortality Rate *	15.9	14.8	13.2
Perinatal Mortality Rate *	16.62	17.75	13.92
Neonatal Mortality Rate *	12.76	9.67	8.38
Toddler Mortality Rate *	0.32	1.03	0.91
Maternal Mortality Rate *	-	0.26	0.20

Note: * Rates per 1,000 births
@ Rates per 100,000 population

Source : Vital Statistics 1990
Department of Statistics Malaysia.

Table 9 : The delivery pattern in District of Baling for the year 1987-1991

Delivery	1987	1988	1989	1990	1991
Hospital Staff	1432	1758	2042	2109	2038
Govn Midwife	1719	1564	1308	1180	959
TBA	36	11	4	1	3
BBA	531	384	233	232	169
Total	3151	3322	3350	3259	2997

Note: TBA -- Traditional Birth Attendent
BBA -- Birth Before Arrival

Source: Annual District Health Report 1991, Baling.

FINDINGS

Analysis of the 126 stillbirth cases delivered to resident mothers in the district of Baling are presented in this section.

5.1 Distribution of stillbirths in the Baling District

5.1.1 Stillbirth Rates in the district

TABLE 10 : STILLBIRTH RATES PER 1000 BIRTHS FROM 1987-1991 IN BALING DISTRICT

YEAR	RATE
1987	8.8
1988	5.6
1989	7.5
1990	4.5
1991	9.6

The highest rate of stillbirths is recorded in 1991 with 9.6 per 1000 births, followed by the second highest 8.8 per 1000 births in 1987. The lowest rate of 4.5 per 1000 births is recorded in 1990. (see table 10)

5.1.2 Types of Stillbirths

TABLE 11 : DISTRIBUTION OF TYPES OF STILLBIRTHS IN BALING DISTRICT FROM 1987-1991

YEAR	FRESH STILLBIRTH	MACERATED S/BIRTH	TOTAL
1987	14 (42.4%)	19(57.6%)	33(100%)
1988	11 (52.4%)	10(47.6%)	21(100%)
1989	11 (40.7%)	16(59.3%)	27(100%)
1990	8 (50.0%)	8(50.0%)	16(100%)
1991	13 (44.8%)	16(55.1%)	29(100%)
TOTAL	57 (45.2%)	69(54.7%)	126(100%)

Out of a total number of 126 stillbirths, there were 57 cases (45.2%) of fresh stillbirths and 69 cases (54.7%) of macerated stillbirths. For the period of five years, for each year macerated stillbirths outnumbered the fresh stillbirths except in 1988 and 1990 when both numbers were almost equal. (Table 11)

5.1.3 Causes of Deaths

ABLE 12: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO THE CAUSES OF DEATHS IN BALING DISTRICT IN 1987-1991

CAUSE OF DEATH	FSB	MSB	TOTAL
CONGENITAL ABNOM.	5(4.0%)	3(2.3%)	8 (6.3%)
PREMATURITY	8(6.3%)	17(13.5%)	25 (19.8%)
ASPHYXIA	44(34.9%)	0	44 (34.9%)
I.U.D	0	49(38.8%)	49 (38.8%)
TOTAL	57(45.2%)	69(54.7%)	126 (100%)

Table 12 shows that majority of the deaths are due to intra-uterine deaths which accounted for 49 cases that is 38.8% of the total deaths. This is then followed by asphyxia with 44 cases (34.9%), prematurity with 25 (19.8%) cases and finally congenital abnormalies with 8 cases (6.34%).

All the deaths due to asphyxia are fresh stillbirths while all those due to intra-uterine are macerated stillbirths. Pertaining to prematurity cases, 13.5% are in the form of macerated stillbirths, whereas in case of congenital abnormalies babies, five out of eight cases are fresh stillbirths.

5.1.4 Stillbirth rates in the operational areas in the district

TABLE 13 : DISTRIBUTION OF STILLBIRTH RATES ACCORDING TO OPERATIONAL AREAS IN THE DISTRICT OF BALING, 1987-1991

OPERATIONAL AREAS	Stillbirth rate
PKB KUPANG	6.9
PKB KUALA KETIL	3.3
PKK TAWAR	11.4
PKK MALAU	6.8
PKK KG LALLANG	11.2
KKIK(BALING)	4.6
PKK PARIT PANJANG	7.2

* rate is 1000 per births.

In relation to operational areas, as shown in table 13, PKK Tawar records the highest rate with 11.4 per 1000 births and followed by PKK Kg Lallang with 11.2 per 1000 births. For PKK Parit Panjang the stillbirth rate is 7.2 per 1000 births. The lowest stillbirth rate is recorded in PKB Kuala Ketil with only 3.3 per 1000 births. The stillbirth rate in operational area of KKIK (Baling) is 4.6 per 1000 births.

5.2 *Stillbirths* and *Socio-economic* Characteristics

5.2.1 Ethnicity

TABLE 14 : DISTRIBUTION OF STILLBIRTHS IN RELATION TO ETHNICITY IN BALING DISTRICT IN 1987-1992

ETHNICITY	STILLBIRTHS (%)
MALAY	116(92%)
CHINESE	4(3.2%)
INDIAN	6(5.7%)

Table 14 presents the information pertaining to the racial composition of the mothers. The Malays constitute the most with a total of 116 cases (92%), followed by the Indians and Chinese with 6 and 4 cases respectively.

5.2.2 Educational Status of mothers

TABLE 15;THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO EDUCATIONAL STATUS OF MOTHERS IN BALING DISTRICT FOR YEAR 1987-1991

EDUCATIONAL STAT	STILLBIRTH	PERCENTAGE
NOT SCHOOLING	16	12.5%
PRIMARY SCHOOL	75	59.5%
LOWER SECONDARY	24	18.9%
UPPER SECONDARY	7	5.6%
RELIGIOUS SCHOOL	4	3.2%
TOTAL	126(100%)	100%

Table 15 shows that there are 16 (12.7%) of the mothers who never attended any school, 75 (59.5%) had only primary school level education. The lower secondary school status records for 24(19%) of the mothers and the upper secondary school status for 5.6%. In addition to that, 4(3.2%) of the mothers have religious school background. None of them has collage or university status.

5.2.3 Occupation of mothers

ABLE 16: THE OCCUPATION OF THE MOTHERS WHO HAD STILLBIRTH IN BALING DISTRICT FOR YEAR 1987-1991

OCCUPATION	STILLBIRTH	PERCENTAGE
HOUSEWIFE	78	61.0%
RUBBER TAPPER	33	26.2%
TEACHER	5	4.0%
LABOURER	4	3.2%
FACTORY WORKER	4	3.2%
CLERK	1	0.8%
LAB ASSISTANT	1	0.8%
TOTAL	126	100%

A majority of the mothers (61.0%) are housewifes. Those who worked as rubber-tappers constitute 33 cases (26.2%). There are 4 (3.2%) mothers who worked as labourers and another 4 cases who worked as factory workers (refer to table 16).

Those who worked as teachers records 5 cases (4.0%), while those working as clerk and laboratory assistant, records one each.

5.2.4 Family Income

ABLE 17; THE DISTRIBUTION OF STILLBIRTHS BY FAMILY INCOME IN BALING DISTRICT IN 1987-1991

FAMILY INCOME	STILLBIRTH	PERCENTAGE
<$175.00	26	20.6%
$176-$250	44	34.9%
$251-$350	22	17.5%
$351-$450	17	13.4%
$451-$550	5	4.0%
$551-$650	5	4.0%
$651-$1000	3	2.4%
>$1000	4	3.3%
TOTAL	126	100%

Table 17, shows the distribution of stillbirths in relation to family income. It is found that 92 cases (73.0%) belong to the group which has monthly income of less than $350.00. Within this group, 26 (20.6%) of them, are with monthly family income of equal to or less than $175.00. The number of mothers who belong to family income of more than $351.00 are 34 cases (27.0%).

5.2.5 Distance Between Home and Health Facility

ABLE 18: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO DISTANCE FROM HOME TO NEAREST HEALTH FACILITY, IN BALING 1987-1991

DISTANCE	STILLBIRTHS	PERCENTAGE
0-2 KM	67	53.1%
3-5 KM	39	30.9%
6-10 KM	20	19.9%
TOTAL	126	100%

About 53% of the mothers live within 3 kilometers of the nearest health facility. However, nearly 20% of the mothers live within 6-10 kilometers while the other 40% stay within 3-5 kilometers (table 18)

5.2.6 Socio-economic status of operational areas in the district

TABLE 19: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO POOR SOCIO-ECONOMIC STATUS OF THE OPERATIONAL AREAS IN BALING DISTRICT IN 1987-1991

* Poor socio-economic status described here is;
  - distance between home and health facility of more than 6 km
  - family income of less than $350 per month
  -(low education status) either has primary school or never attended school.

OPERATIONAL AREA	SOCIO-ECONOMIC STATUS		
	DISTANCE TO HEALTH FACILITY > 6KM	INCOME <$350	LOW EDUCATION
PKB KUPANG	4 (20%)	20(22%)	14(15%)
PKB K.KETIL	1 (5%)	5(5%)	5(5%)
PKK TAWAR	12 (60%)	19(21%)	18(20%)
PKK MALAU	3 (15%)	7(8%)	10(11%)
PKK KG LALLANG	0	21(23%)	21(23%)
KKIK(BALING)	0	10(11%)	10(11%)
PKK PRT PANJANG	0	10(11%)	13(14%)
TOTAL	20(100%)	92(100%)	91(100%)

Table 19 shows that 60% of mothers who live more than 5 km from the health facility are in operational area of PKK Tawar. Another 20% live in operational area of PKB Kupang.

The table also shows that 21% of mothers who have family income of less than $350.00 per months stay in operational area of PKK Tawar, and another 23% live in PKK KG Lallang.

In case of mothers who have either primary school status or never attended school, 23% live in operational area of PKK Kg Lallang and 20% stay in operational area of PKK Tawar.

5.3 *Stillbirths* in relation to *Maternal Characteristics*

5.3.1 Maternal Age

BLE 20: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO AGE GROUP OF MOTHERS IN BALING DISTRICT IN 1987-1991

AGE GROUP	STILLBIRTH	PERCENT
< 20 YEARS	1	0.8%
20-24 YEARS	12	9.5%
25-30 YEARS	40	31.8%
31-34 YEARS	28	22.2%
35-48 YEARS	45	35.7%
TOTAL	126	100%

Table 20 shows that there are 45 (35.7%) cases among the mothers whose age were roughly 35 years to 48 years. In the age group of between 31 years to 34 years, there are 28 (22.2%) cases . Majority of the mothers belong to the age range of 20 to 30 years with 52 (41.3%) cases. There is only one mother whose age was under 20 years old.

5.3.2 Parity

TABLE 21: THE DISTRIBUTION OF STILLBIRTHS BY MATERNAL PARITY IN BALING DISTRICT, 1987-1991

PARITY	STILLBIRTH	PERCENTAGE
PARA 0	21	16.6%
PARA 1-2	26	20.6%
PARA 3-5	44	34.9%
PARA 6-12	35	27.8%
TOTAL	126	100%

As shown in table 21, of the 126 cases of stillbirths, 34.9% occurred among mothers with parity 3-5, followed by 27.8% among mothers with parity 6-12 and 20.6% among mothers with parity 1-2. The least number of stillbirths are among the primiparas (16.6%).

5.3.3 Parity and Educational Status

TABLE 22 : DISTRIBUTION OF STILLBIRTHS BY PARITY AND EDUCATIONAL STATUS, IN BALING 1987-1991

PARITY INTERVAL	* EDUCATIONAL STATUS (PERCENTAGE)					TOTAL
	A	B	C	D	E	
PARA 0	9.5%	47.6%	23.8%	19.1%	0	100%
PARA 1-2	7.6%	53.8%	27%	7.6%	3.8%	100%
PARA 3-5	13.6%	56.8%	22.7%	2.3%	2.3%	100%
> PARA 5	17.1%	74.3%	5.7%	0	2.8%	100%

* A - NO SCHOOLING
B - PRIMARY SCHOOL
C - LOWER SECONDARY SCHOOL
D - UPPER SECONDARY SCHOOL
E - RELIGIOUS SCHOOL

Table 22, shows that about 74.3% of the grandmultiparous have primary school education while 17.1% never attended school. None of the grandmultiparous has upper secondary school education.

For the rest of the mothers in other parity

groups, more than 50% in each group have either primary school status or never attended school.

5.3.4 Preceding Pregnancy Interval

TABLE 23: THE DISTRIBUTION OF PRECEDING PREGNANCY INTERVAL IN RELATION THE PREGNANCY OUTCOME

PREG. INT	STILLBIRTH	PERCENTAGE
PRIMI	20	15.5%
<12 MONTHS	20	15.9%
12-23MONTH	45	35.7%
2-5 YEARS	31	24.6%
> 5 YEARS	10	7.9%
TOTAL	126	100%

Table 23 shows that there are 65 cases (51.5%) who has pregnancy interval less than 2 years and 20 (15.5%) cases with pregnancy interval less than 1 year. In addition to that, there are 10 (7.9%) cases whose pregnancy interval are more than 5 years. When analyzed according to ethnicity, it is found that, 59 (46.8%) cases of the total number of Malay mothers had pregnancy interval of less than 2 years which is not shown in the table.

5.4 *Stillbirths* And *Relation to Utilization of Services*

5.4.1 Ante-natal Visits

TABLE 24: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO ANTE-NATAL VISITS IN BALING DISTRICT 1987-1991

VISIT	STILLBIRTH	PERCENTAGE
1 - 4	38	30.2%
5 - 7	50	39.6%
8-10	32	25.4%
> 10	6	4.8%
TOTAL	126	100%

Table 24 shows that, the number of mothers who had less than 8 visits are 88 cases (69.8%), while those who made more than 8 visits are only 38 cases (32.2%). The mean for the number of antenatal visits is 6.13 .

5.4.2 Timing of First Ante-natal Visit

TABLE 25: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO TIMING OF FIRST ANTE-NATAL VISIT IN BALING DISTRICT, 1978-1991.

ANTE-NATAL VISIT	STILLBIRTH	PERCENTAGE
< 14 WEEKS	8	6.4%
15-20 WEEKS	44	37.0%
21-24 WEEKS	50	39.7%
25-30 WEEKS	20	15.8%
> 30 WEEKS	4	3.2%
TOTAL	126	100%

In relation to period of gestation, it is noted that 50 mothers or 39.6% had made first visit during the gestation period between 21 to 24 weeks and only 4 cases made first visit after 30 weeks of gestation period (as table 25).

5.4.3 Gestation Period When First Examined By Doctor

BLE 26: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO THE ESTATION PERIOD OF MOTHERS WHEN FIRST EXAMINED BY DOCTOR, IN BALING DISTRICT, 1987-1991

GESTATION PERIOD WHEN EXAMINED	NO OF STILLBIRTHS	PERCENTAGE
NOT EXAMINED	5	4.0%
14-20 WEEKS	16	12.8%
21-24 WEEKS	51	40.0%
25-30 WEEKS	28	22.1%
31-34 WEEKS	23	18.2%
> 34 WEEKS	2	1.6%
TOTAL	126	100%

As shown in table 26, all the mothers except 5 were not examined by doctor. It is seen that 51 cases or 48.4% were seen by the doctor during the gestation period between 21 to 24 week. It is also noted that 25 cases were examined after 30 weeks of gestation period.

In addition to that, there are 28 cases or 22.2%, when the first exams are made at 22 gestation period while 32 (25.3%) are made at 24 gestation period.

5.4.4 Home Visits

TABLE 27: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO OF HOME VISITS IN BALING DISTRICT 1987-1991

FREQUENCY OF VISITS	STILLBIRTHS	PERCENTAGE
NO HOMEVISIT	12	9.5%
1-3 VISITS	50	39.7%
4-6 VISITS	35	27.8%
> 6 VISITS	12	9.5%
TOTAL	126	100%

Table 27 shows that, the total number of home visits made by the health staff during pregnancy are 122 visit with the mean of 3.18 visits. There are 12 cases (9.5%) who had not been visited at all by the staff. The number of mothers who had visit frequency of more than 4 visits are 47 (37.3%) of them.

5.4.5 Ultra-sound scanning

In terms of diagnostic procedures done to the mothers during pregnancy, out of 25 cases of post dated pregnancies only 9 cases were scanned of which 4 were scanned after 38 weeks of gestation period. No mother was sent for any X-ray examination.

5.4.6 Delivery Attendants

TABLE 28: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO THE TYPES OF DELIVERY ATTENDANTS IN BALING DISTRICT IN 1987-1991

CONDUCTOR	FSB	MSB	TOTAL
DOCTOR	22(17.6%)	14(11.1%)	36(28.6%)
STAFFNURSE	10(7.9%)	15(11.9%)	25(19.8%)
MIDWIFE	16(12.7%)	32(25.4%)	48(38.1%)
TBA	9(7.1%)	8(6.3%)	17(13.5%)
TOTAL	57(45.2%)	69(54.8%)	126(100%)

In table 28, it is seen that, of all the total deliveries, there are 109 cases were conducted by trained personnel namely doctors, staff nurses and midwifes. Deliveries conducted by Traditional Birth Attendants (TBA) are 17 (17.5%)

Of the cases conducted by trained personnels, 36 cases (22 fresh stillbirths and 14 macerated stillbirths) or 28.6% were conducted by doctor, 46 cases (16 fresh stillbirths and 32 macerated stillbirths) or (38.1%) were delivered by government midwifes and 25 cases (10 fresh stillbirths and 15 macerated stillbirths) or (19.8%) were conducted by the Staff Nurses.

5.4.7 Delivery Deciders

TABLE 29: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO THE DELIVERY DECIDERS IN BALING IN 1987-1991

DELIVERY DECIDER	STILLBIRTH	PERCENT.
HEALTH PERSONNEL	50	39.7%
SELF DECISION	43	34.1%
HUSBAND	21	16.6%
FATHER/MOTHER	10	7.9%
GRAND MOTHER	2	1.6%
TOTAL	126	100%

As shown in table 29, it is found that 50 cases (39.7%) placed their dependencies on the health personnel , 43 cases (34.1%) made self-decision, 21 cases (16.6%) depended on the husbands and finally 10 cases depended on their fathers or mothers to decide.

5.5 *Stillbirths* in relation to *Pregnancy Complications* and *Management* of Complications

5.5.1 High Risk Conditions

There are 109 of the 126 mothers who had one or more high risk conditions. Table 30, shows the common high risk conditions:

Table 30: High risk conditions among the mothers.

High Risk Condition	* Frequency
1. Age more than 45 years	42 cases
2. Pre-eclampsia	21 cases
3. Abnormal lie	21 cases
4. Primigravadas	15 cases
5. Aneamia	14 cases
6. Bad Obstetric History	8 cases
7. Preceding Int.> 5 yrs	8 cases
8. Ante-partum Hemorrhage	7 cases

* Some mothers had more than one high risk conditions.

5.5.2 Maternal Complications

TABLE 31: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO MATERNAL COMPLICATIONS IN BALING DISTRICT IN 1987-1991

COMPLICATIONS	PREGNANCY OUTCOME		TOTAL
	FSB	MSB	
PREECLAMPSIA	11(8.7%)	10(7.9%)	21 (16.6%)
FALL	4(3.2%)	12(9.5%)	16(12.7%)
ANEAMIA	6(4.8%)	8(6.3%)	14 (11.1%)
VDRL POSITIVE	1(0.8%)	4(3.2%)	5 (3.9%)
DIABETES	1(0.8%)	0	1 (0.8%)
TOTAL	19(19.1%)	22(17.5%)	41 (32.5%)

During their pregnancy, among the 126 mothers who had stillbirths, 16.6% of them experienced pre-eclampsia, 11.1% suffered from aneamia, 12.7% had history of fall, 3.9% were tested positive for venereal disease (VDRL) and finally only one had diabetes mellitus. (see table 31).

Among the 21 mothers who suffered from pre-eclampsia, 11 of them ended with fresh stillbirths and 10 resulted with macerated stillbirths. In case of those who had falls

during their pregnancy periods, they ended with 4 fresh stillbirths and 12 macerated stillbirths

In the group of the 14 aneamic mothers, 6 of them ended with fresh stillbirths and 8 with macerated stillbirths. For those mothers who were had tested positive for venereal disease, they ended with 1 fresh stillbirth and 4 macerated stillbirths. Finally the only diabetic mother had fresh stillbirth.

5.5.3 Management of Complications

TABLE 32; THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO REFERRALS MADE AND MANAGEMENT OF COMPLICATIONS, IN BALING DISTRICT, 1987-1991

COMPLICATION	NO OF CASES	REFERRALS AS REQUIRED		MANAGEMENT	
		NO	%	ADEQUATE	%
PRE-ECLAMPSIA	21	21	100%	10	47.6%
ANEAMIA	14	13	93%	8	61.5%
VDRL +	5	4	80%	3	75%
DIABETES	1	1	100%	1	100%

1) Pre-eclampsia:

There are 21 cases of pre-eclampsia and all the cases were referred to the doctors. However, out of 21 referred cases, 10 cases (47.6%) were adequately treated according to guideline by Ministry of Health (see annex 4, for guidelines by Ministry of Health). Among the inadequately managed mothers, 4 cases were allowed to be post dated, 4 cases were

not referred to hospital when required and 2 cases were not given any hypertensive drugs when it was required refer to table 32)

2)Aneamia:

Among the 13 aneamic mothers, all except one were referred. Regarding the standard of treatment, almost all mothers were treated as expected by Ministry of Health (see annex 4), except 2 of them who were r- erred quite late to the hospital for further management. (table 32)

3-VDRL POSITIVE:

Of the 5 cases, one case was not referred. Of the 4 cases referred, 3 cases were treated as expected (as in annex 4)while one case defaulted treatment (see table 32)

4-DIABETES:

In this study, there was only one case of diabetes which was treated satisfactorily. (see table 32)

5.6 *Stillbirths* in relation to *Foetal Characteristics*

5.6.1 Birth Weight

TABLE 33: THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO BIRTH WEIGHT IN DISTRICT OF BALING 1987-1991

FOETAL WEIGHT	STILLBIRTHS	PERCENTAGE
< 500 GM	1	0.8%
500 - 999 GM	4	3.2%
1000 - 1499 GM	15	11.9%
1500 - 1999 GM	31	24.6%
2000 - 2499 GM	25	19.8%
2500 - 3499	42	33.3%
> 3500	8	6.3%
TOTAL	126	100%

Table 33 shows that there are 76 cases (60.3%) whose birth weight is less than 2.5 kg, while 42 cases (33.3%) with birth weight between 2500-3499 kg. Finally the number of cases having birth weight more than 3.5 kg are 8 cases (6.3%).

5.6.2- Birth weight and Preceding Pregnancy Interval

TABLE 34: THE DISTRIBUTION OF STILLBIRTHS WITH LOW BIRTH WEIGHT IN RELATION TO PRECEDING PREGNANCY INTERVAL IN BALING 1987-1991

PREGNANCY INTERVAL	NO OF LOW BIRTH WEIGHT FOETUSES (LESS THAN 2500GM)
PRIMIGRAVIDAS	15 (11.9%)
< 12 MONTHS	13 (10.3%)
12 - 23 MONTHS	26 (20.6)
2 - 5 YEARS	16 (12.6%)
> 5 YEARS	6 (4.8%)
TOTAL	76 (60.3%)

As shown in table 34, there are a total of 39 low birth weight foetuses delivered by mothers whose preceding pregnancy interval is less than 2 years and 6 foetuses were born to mothers with more than 5 years interval. Among the primary gravidas, there are 15 low birth weight foetuses.

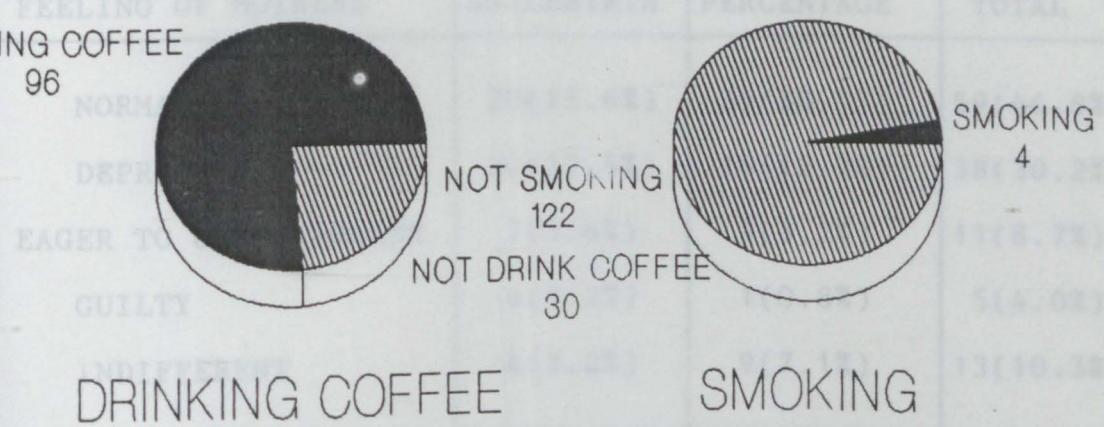
5.7 *Stillbirths* In Relation to *Maternal Habits*

5.7.1 Maternal Habits

Figure 4, shows that, the two commonest pregnancy-related maternal habits of mothers are smoking and drinking coffee. None of the mothers took alcohol beverages during the pregnancy. Only 4 mothers gave the history of smoking in the course of their pregnancy and 2 of them resulted in fresh stillbirths and the other 2 ended with macerated stillbirths.

The commonest habit practised by the mothers, especially among the Malays, was drinking coffee. There are a total of 96 mothers who drank coffee regularly during their pregnancy. It is found that 42 cases experienced fresh stillbirths and the other 54 cases ended with macerated stillbirths.

THE DISTRIBUTION OF STILLBIRTHS IN RELATION TO HABITS OF MOTHERS IN BALING DISTRICT,1987-1991



DRINKING COFFEE SMOKING

5.8 Feeling of the mothers towards stillbirth

TABLE 35: THE DISTRIBUTION OF FEELINGS OF THE MOTHERS TOWARDS STILLBIRTHS IN BALING IN 1987-1991

FEELING OF MOTHERS	STILLBIRTH	PERCENTAGE	TOTAL
NORMAL	20(15.6%)	39(30.9%)	59(46.8%)
DEPRESSED	22(17.5%)	16(12.7%)	38(30.2%)
EAGER TO GET PREGNANT	7(5.6%)	4(3.2%)	11(8.7%)
GUILTY	4(3.2%)	1(0.8%)	5(4.0%)
INDIFFERENT	4(3.2%)	9(7.1%)	13(10.3%)
TOTAL	57(45.2%)	69(54.8%)	126(100%)

When asked about the feelings of the mothers when they had stillbirth, it is found that 59 of them said that they consider the incidents as normal, 38 felt depressed, 11 were eager to be pregnant again and 5 had feeling of guilt. It is also found that 13 of the mothers did not care less regarding the incidence (refer to table 35).

Among the depressed mothers, 22 of them were who had experienced fresh stillbirths and other had experienced 16 macerated stillbirths. In case of mothers who felt guilty, 4 of them

had fresh stillbirths and only 1 had macerated stillbirth. For the mothers who had normal feeling, 39 of them were with macerated stillbirths and only 20 had fresh stillbirths.

6 : DISCUSSION:

6.1 Stillbirth rates

Economic development and modernization with the improvement in nutrition, literacy, standard of living, preventive health programs and obstetric care are related to the decline of perinatal rate including stillbirth rate.

Stillbirth rate is affected by the availability and efficiency of the type of care that is given to the mothers during the antenatal and intrapartum period. Stillbirth is also a reflection of the efficiency of the primary health care and public health services, general health status, and the standard of living of a country.

As for the district of Baling, being the second poorest district in the state of Kedah Darulaman it is also undergoing stages of development. With improvement of development, it is expected that the stillbirth rate would decline gradually. However it is found that there is no consistent decrease in stillbirth rates from year to year during the study period.

In fact, in 1991 the stillbirth rate of Baling is higher when it is compared to the stillbirth rates of Kedah Darulaman and that of national level. This reflects the less favourable socio-economic and cultural conditions of the districts. A report by WHO which quotes that high perinatal mortality (including stillbirth) is characterized by poor housing, overcrowding and residence in certain neighborhood {52}. A study by Chen (1985), has shown perinatal mortality is closely related to poor housing and overcrowding which are faced by most of the rural communities in Asia and also two third of the population in Asia has no regular access of modern facility or health care {53}.

Operational area of Pusat Kesihatan Besar Kuala Ketil has the lowest occurrence of stillbirths compared to the rest, eventhough it covers a large area and cateres a large number of the population. In addition, the stillbirth rate of KKIK (Baling) is the second lowest. Both these areas are the developing areas in Baling, and town of Baling and Kuala Ketil are the two main foci of development in the district especially with the emergence of industrial areas. All these factors lead to urbanisation,mordernisation and improvement of the health status. It is also

interesting to mention that in the operational area of PKB Kuala Ketil, almost all the mothers live within 3 km from the health facility.

The highest rate of stillbirths are recorded in the operational areas of Pusat Kesihatan Kecil Tawar, followed by Pusat Kesihatan Kecil Kg Lallang and Pusat Kesihatan Parit Panjang. The higher occurrence of stillbirths in the three operational areas can be explained by socio-economic factors such as family income, educational status and communication.

Majority of the mothers have income of less than $350.00 (national poverty level). Pertaining to the educational level, these three operational areas also record the highest number of mothers having lower educational level. In operational area of PKK Tawar, the problem of communication is quite prominent with 48% of the mothers living more than 6 kilometers from the nearest health facility.

6.2 Socio-economic characteristics

With regard to ethnicity, Malays recorded the highest number of stillbirths followed by the Indians while the Chinese recorded the lowest. The higher number

of stillbirths observed among the Malays could be due to the highest ethnic composition in the district whereby the Malays formed 82.1 % of the total population, whereas Indians formed 8.39% and Chinese 8.04% of the total population {54}

A study done by Tambyraja, et all, on ethnic variation in perinatal mortality (including stillbirth) of Singapore from 1974 to 1978, showed that the higher perinatal mortality rate among the Malays and Indians were due to the lower birth weight and higher incidence of stillbirth {55}. In another study by Tan et all, it is seen that the perinatal (including stillbirth) mortality in Singapore was the lowest among the Chinese as compared to Malay and Indian ethnic groups {56}.

Other factors responsible for the high stillbirths among the Malays could be due to most of the Malays live in the rural areas where there is low socio-economic status and less favourable cultural influence, where as most of the Chinese live in the Town areas where urbanization, development and industrialization are taking place.

The importance of the accessibility to obstetric care has been stressed in a study done by Nesbit, et all, in which their analysis of the effect of accessibility to obstetric care on the birth outcome in rural areas of Washington state, The United State of America, has shown that women who lived in the rural areas in which little or no obstetric care available , were more likely to have complicated labour and premature deliveries. They explained that these consequences were due to either time factor or lack of resources needed to obtain antenatal care {57}

Nesbit also noted that the likely reason for the delay in the antenatal checkup was due to either marginal income of the mothers or inadequate transportation. But in this study, even though majority of the mothers belong to low socio-economic groups all of the them had their first ante-natal check up as early as at the 18 gestation weeks and latest by 32 gestation weeks. The possible explanation that most of them within easy-reach from the nearest health facilities as 82.5% of the mothers lived within 4 kilometers from the nearest health facility.

Looking specifically into the family income, it is noted that the highest number of stillbirths are recorded in the families with the income within the range of $176.00 to $250.00. As the family income increases the number of stillbirths decreases. Hence, generally the incidence of stillbirths is inversely proportional to the family income. The mean family income for the whole population in the study is $356.00, which is nearly close to the national poverty level. Therefore it is expected that the stillbirth rate is high.

In addition, it is also shown that 62.3% of the husbands were self-employed and had irregular income due to climatic conditions. As an example, a rubber-tapper is going to loose his income in the rainy season and it is found that 53% of the husbands worked as rubber-tappers.

The finding is in line with a study done by Siti Norazah and Khairuddin in which it is reported that there were more perinatal deaths (including stillbirth) in the lower socio-economic class {20}. This fact is further supported by World Health Organization (WHO) report which states that the risk of perinatal death was high in the under privileged class and decreases as family's social and economic

status improves {52}.

Similarly, in another study done by C.Churchill et all, in Beirut (Lebonan), it is found that stillbirth rate was higher among the low status women than among the middle status {58}. However in Ankara, Turkey, K.Sumbuloglu et all in a study, reported that the stillbirth rates for both middle and low status women were equal {59}.

Studies have shown that strenuous work during pregnancy has deleterious effects on the pregnancy and its outcomes. A study done by Mac Donald A.D has shown that there has been an increased incidence of premature delivery and low birth weight among women in heavy manufacturing positions compared to those managerial, clerical and sales position {37}. working mothers worked as rubber-tappers and another 17% of th working mothers were employed as labourer in order to supplement the meagre income of the hus and. Another study done by Mamelle et all, also has shown that strenuous work had harmful effect on pregnancy{36}.

This study also shows that a majority were involved in strenuous work such as rubber tappers and labourers. In term of less labourious work , fewer number of working mothers who work as teachers and clerical job experienced stillbirths.

6.3 Maternal Characteristics

Generally stillbirth rate is high in high risk age group. Studies such as by B.D Navidi Kasmaii, show that stillbirth rates were highest for the oldest women and lowest for those in the twenties {9}. Another study done by Mubasher has shown that wastage (including stillbirth) was directly influenced by the age of mothers, being higher in the high risk maternal age of less than 20 years or 35 years and older {60}.

However in a local study done by Siti Norazah and Khairuddin, surprisingly it is found that the mothers in the age range of between 25-29 years age group had higher number of perinatal (including stillbirth) deaths {20}. The reason for this trend explained by researchers is due to the fact the highest occurrences of fertility is among the mothers who are in the 20-29 years age group.

This study also shows that, the highest proportion of stillbirths are in the age group of between 20 years to 34 years which constituted 65.8% of the cases. This could also be due to the larger proportion of mothers in this age group giving birth as is observed in the study by Siti Norazah and Khairuddin.

In relation to parity, studies done by several researchers such as Oxorn et all {21} and Israel et all {22}, have shown that the higher the parity especially among the grandmultiparas, the higher the possibilities of pregnancy complications such as aneamia, pre-eclampsia, chronic hypertension, placenta disorders and uterine rupture which leads to more pregnancy wastages.

In this particular study, grand-multiparea forms the second majority group of the cases (27.8%). These higher parity group also belong to the lower social economic status. In addition to this, the pregnancy complications such as aneamia and pre-eclampsia are also more common in grand multiparae.

When preceding pregnancy interval is concerned, it is noted that half of the mothers (52%) had pregnancy interval of less than two years which is the unsafe

period. This result is in line with the findings described by B.D Navidi-Kasmii {9} in Tehran and another study done in Ghandigram (India) by S.Gunasekaran et all {61} in which stillbirths are higher for preceding pregnancy intervals of less than 2 years.

In this study, this risk becomes more serious as majority of multiparous mothers came from the lower educational and economic group. It is also noted that half of the aneamic mothers and one third of the pre-eclamptic mothers were having pregnancy interval of less than 2 years. Eisner V, in a study found that short inter-pregnancy interval of less than one year is a risk factor for the occurrence of low birth weight foetuses {26}.

This study also demonstrates association between the length of inter-pregnancy interval and the birth weight of the foetuses. The greater number of low birth weight occurred in women with the short inter-pregnancy interval. As for the reason, John G Heage in his study, mentioned that short pregnancy interval results in inadequate recuperation from the earlier parturition and some mechanism interfering with the development in early pregnancy of the utero-placenta circulating system, leading foetal growth

retardation {29} .

6.3 Foetal Characteristics

Foetal weight is of paramount importance for the foetal survival. Seed J.W. in his study, noted that the infants who are small for gestation age (IUGR) are at increased risk of death during the perinatal period{34}. It is not surprising that, in our study, it is noted that majority of the foetuses (60.3%) had birth weights less than 2.500 gm.

The age of the mothers, is also associated with low birth weight. A study done by Hansen (1968), found that older women have increased incidences of babies weighing less than 2500 grams at birth both preterm and small-for-gestation-age {62}. He also noted that there was an increased rate of hypertension and pre-eclampsia among older pregnant women {62}. In this study, nearly half of the mothers are above 35 years and can lead to low birth weight foetuses and ended with stillbirths.

In relation to post term delivery, a study done by Chervenak et all, reported that rate of macrosomic infants increased in pregnancies which progressed post term {63} . As for this particular study , 4 out of 19 post dated pregnancies delivered foetuses less than 2.5 kg and in addition none of the foetuses weighted less than 1.5 kg. In this study, of the 19 post dated pregnancies, it is found that 9 cases had foetal weight more than 3 kg.

6.4 Utilization of services

Ante-natal care is one of the most important tool in monitoring foetal well-being. Antenatal checks refer to medical examination carried out on expectant mother to determine her well being and that of her unborn child. It has been reported by the WHO that adequate antenatal care has a very closed relationship with the reduction of foetal mortality rate. Ministry of Health of Malaysia with the collaboration of WHO recommends that for an optimal antenatal care, it should be at least 8 visits starting from the first trimester.

In this particular study it is found that only 38 cases or 32.2% of the mothers had made more than 8 visits. The mean for the number of antenatal visits is 6.13 which is less than expected by the Ministry of Health. More educated mothers attended their antenatal checks earlier than the others. It would appear that such women are quicker to perceive the advantages of early antenatal visits.

As for the mean length of gestation period was 19.9 weeks, this means that majority of the mothers were able to attend the antenatal check as early as 20 weeks of gestation. The house distance from the nearest health facility, might be responsible for this observation as 84.1% of the mothers were staying within 5 kilometers. But this awareness to come early does not consistently happen because the number of antenatal visit is below the target set by the Ministry Of Health

With regard to first examination by the doctors, the coverage was good and almost 50% were seen by the doctors between the 22 and 24 weeks of gestation. This period is particularly vital because any problems can be detected and early intervention could be instilled. It is also important for any post dated pregnancy later on can be extrapolated confidently to

determine the day of labour induction.

In this study, it is noted that ultra-scanning in the events of post date was not carried out for all the post date mothers. Only 9 out of 25 cases of post dated pregnancies were scanned and in addition 4 of the scanned cases were only done after 36 week of gestation.

It is generally accepted that if the foetal biparietal diameter measurement is taken before 20 gestation weeks, a second measurement at 42 weeks can be very helpful method for establishing foetal age and thereby confirming the diagnosis of post mature pregnancy {63}

The percentage of safe delivery exceeds 85%, and all the unsafe deliveries are found to be birth before arrival (BBA). These particular BBA might be due to unavoidable circumstances such as inability to obtain the government midwife or the mother might be alone during the onset of labour. At least nearly 30% of the deliveries were conducted by doctors and another 60% were conducted by either staffnurses or government midwifes.

The great number of stillbirths conducted by the health personnel especially doctors in the hospital, may be due to the large incidence of prolong labours resulted in asphyxia of the foetuses. The activity of Traditional Birth Attendants (TBA) was only limited to occurrence of BBA whereby they had to conduct the delivery without the presence of any health staff.

In deciding the place of delivery, it is a good sign that 40% placed their confidence upon the health personnel to decide. Besides that, the husbands also played major roles in deciding the place for delivery and therefore they must be one of the target of the health education programs.

The mean frequency for home visiting during the period of antenatal is 3.14 visits which fulfils the target given by the Ministry of Health. There is no strong association between increased number of visit and reduced foetal mortality: the women at highest risk may have the most visits for obvious reasons.

6.4 Maternal Complication & Management

In this study, among the high risk mothers, which made up of 86.5% of total 126 cases, mothers of age

group more than 35 years was the commonest risk factors followed by pre-eclampsia and abnormal lie These risks factors may lead to the occurrence of stillbirths if improperly managed.

Pertaining to the maternal complications, they forms 40% of the mothers. Most of the complications resulted more in macerated stillbirths rather than fresh stillbirths especially in cases who had history of fall. Overall management of all the complications is satisfactory except with the pre-eclampsia cases.

Among the PET mothers, there were almost equal number of fresh and macerated stillbirths. The standard pre-natal care may be responsible for the ultimate result of these complications. Eventhough all the cases of pre-eclampsia were referred to the doctors, half of the cases were not managed adequately, such as allowing the pregnancy to be post date. Pregnancies which are allowed to be post date will usually end with intra- uterine death as there are great possibilities of placenta deficiencies. Some mothers are not referred to the hospital, when it is necessary.

As for all the aneamic mothers, only one case was not treated while the rest had been treated satisfactorily except for two cases who referred late to the hospital for further treatment. For venereal positive mothers, they were satisfactorily treated except one case defaulted treatment and another was not treated.

It should be noted that the importance of accident as there were 16 mothers revealed the history of fall/accident during their course of their pregnancies and 75 % of them ended with macerated stillbirth. This shows that the mothers are not aware of the danger of accident/fall in the course of their pregnancy.

6.6 Maternal Feeling towards stillbirths

In Baling District, the population especially among the Malay mothers possess cultural heritage which are tightly bounded by traditional practices. Frequently infant death are regarded merely as the decision of god (takdir) and should not be further questioned.

It is surprising that half of the mothers, when asked about their feeling about the incidence of

stillbirths, half of them considered it as normal and even 10% were indifferent.

In term of maternal habits, most of the mothers in Baling drink coffee.

In this study , eventhough one third or 76.2% of the mothers gave history of regular coffee consumption its significance can be still questioned because the exact amount or concentration of coffee was not available to be proven. This needs to be further studied as this habit is commonly among the communities compare to smoking which is well known for its deleterious effect on pregnancy.

RECOMMENDATIONS

1. In the Ministry of Health, the mothers are encouraged to attend the antenatal clinic as soon as they know that they are pregnant. In the study, there are only 32 cases (25.3%) who had made first ante-natal visit before 20 gestation weeks. Thus increased effort should be made to encourage women to attend antenatal clinics before the time when the foetus starts to move, eg. by relating such attendances to some recognitions like special certificates, or food token.

2. As it is found in this study, the percentage of mothers involving with strenuous works is nearly 30%, advice on work and food intake should be stressed in such a way, effort should be made to alleviate the high-energy-consuming tasks of women and increasing the energy intake especially in the third trimester. Government support could be provided, through such measures as longer maternity leave and nutritional benefits.

3. Closed attention should be paid to risk factors studied in this research, such as poor obstetric history, high parity, short preceding pregnancy

interval, age more than 35 years old and so on : means should be devised to identify mothers having such risk factors (eg. by using special check list, or in service training of the staff in the identified weak areas), and special arrangements should be made to ensure adequate monitoring of the pregnancy.

3. In the study, it is noted that half of the mothers have preceding pregnancy interval of less than 2 years, health education should be geared to instil the importance of properly spaced birth and timed in relation to the advantages of maternal and infant health. The good accessibility of the health facilities should be fully utilized, thus the informations, and many effective methods exist, to regulate the timing and spacing of pregnancy should be easily available even in the Klinik bidan/Desa .

4. Special high risk mothers such as those with pre-eclampsia, diabetic and aneamia make up one third of the total cases. They should be grouped, and separate health education of the specific topics should be given to ensure full understanding of the problems faced. Importance of accidental fall during pregnancy should be given special emphasis.

5. In the study, there is 69.8% of the foetuses had birth weight less than 2.5 kg. Thus, the importance of weighing the mothers should be reconsidered. Weight gains of the mothers should be consistently and specifically calculated at 30 and 36 gestation weeks using baseline weight of 22 gestation weeks, in order to detect intra-uterine growth retardation which finally results in low birth weight babies.

6. The coverage of mothers who were first examined by doctors at 22- 24 gestation weeks is only 47.5%, strict instructions should be given to the nurses and midwifes to refer all pregnant mothers to the doctors for examination at 22-24 weeks of gestation.

7. The number of post dated pregnancies which were scanned is not satisfactory (only 9 out of 25 cases). Hence compulsory ultra-sound scanning should be imposed to all mothers whose fundal heights are not coincide with the period of ammonorrhea who are the potential "post date" mothers.

8. Abnormal lie and ante-partum haemorrage form 16.7% and 5.6% of the total cases respectively, Thus, it should be emphasized on mothers who have painless per vaginal bleedings and abnormal lie to be scanned

in order to rule out placenta previa and to know the exact position of the foetuses.

9. As the numbers of post-dated pregnancies forms 19.8% of the total cases, assessment for the need of induction of the potential post-date mothers should be made compulsory at 38 gestation weeks to ensure the safety of the foetuses.

10. Even though the mean home visits during the antenatal period is 3.18, work distribution of staff at health centres needs to be reviewed so as to allow time for home visits to be made for antenatal cases, in order to further increase the necessary visits especially for the high risk cases.

11- The knowledges of personnel in certain field of managements such as management of pre-eclampsia should be refreshed. Hence in service trainings of those categories of staff involved have to be carried out in order to improve their knowledges and skills.

12. In other Maternal and Child Health trainings, strategies should be oriented as to ensure that the training is socially relevant and addresses itself to the three main groups:

    a) families, community and public at large.
    b) workers in various development sectors, including policy makers and planners.
    c) the different categories of health workers at all levels, including primary health workers, traditional birth attendants and health professionals and specialists working at supervisory and referral centres.

13. As the majority of the mothers have low educational status, health education approach has to be tailored toward educational status of the mothers. Thus, talks should be simplified and pictorials so as it can extensively used to impart the massages.

14. The study shows that the husbands play an important roles in deciding the place of delivery. Therefore knowledges about health and its determinants, and preparation for parenthood should become part of general education particularly to the male

counterparts, through formal and informal education programs, the mass media, ect.

15. Modern investigations namely hepatitis antibodies detection, HIV test, alpha-foetoprotein test, plasma oestrogen and HCG test should be considered for their introductions in our current ante-natal care.

16. Socio-economic problem is the main issue in this study and the most difficult one to be solved. Hence intensification of system approaches involving several agencies for solving health problems of mothers especially in areas related to care of mothers during pregnancies and deliveries, should be encouraged. For example the National Poverty Program (PPRT programs) or primary health care concepts can be utilized to participate in educating, influencing and motivating good health habits.

SUMMARY :

A study to review all the stillbirths which occured among the residents of the District of Baling from 1st January 1987 to 31st December 1991 using secondary data and from interviews was carried out in April 1992. The data was obtained from the ante-natal cards, the investigation forms and individual interviews of the mothers who had stillbirths within the period.

The purpose of this study is to identify some of the factors associated with stillbirths, with emphasis on the ante-natal and intra-natal care so that some recommendations can be suggested which can possibly reduce occurance of preventable stillbirths.

A total of 126 stillbirths occured during the five year period and all were traced and interviewed. The everage still irth rate of the district is lower than the state and national levels but has remained inconsi tant over the years from 1978-1991. The Malays recorded the highest number of stillbirths followed by the Indians and Chinese the least.

Majority of the mothers belonged to lower socio-economic status. As the family income and the

educational status of the mothers increased the incidence of stillbirths decreased. Majority of the working mothers were involved in laborious types of works such as rubber tappers or labourers.

Pertaining to the maternal age, the highest proportion were in age group of 20-34 years. For the parity, the grand multiparas formed the second majority group of the cases and mostly belonged to the lower socio-economic status. The preceeding interval of the mothers shows that half of the them were pregnant in the unsafe period of less than two years.

The foetal weights in this study shows that the majority of foetauses weighed less than 2.500 gm. The maternal age, pregnancy complications (40% of cases) are associated low foetal weight.

The overall standard of ante-natal care is fair. Only one third of the mothers fulfilled the frequency of ante-natal visits recommended by Ministry of Health of Malaysia. However majority of them were able to make first ante-natal check up as early as 20 weeks, and most of them were first seen by doctor between 22 weeks to 24 weeks of gestation. This can be due to majority of mothers lived within 5

kilometers to the nearest health facility.

The more educated mothers attended the ante-natal clinic earlier in their pregnancy than the uneducated ones. All types of the pregnancy complications were fairly managed and for pre-eclampsia cases. Besides that there are a few cases of refusal and defaulting treatment. However the post dated pregnancies were not properly managed especially in term of usage of ultra-scanning.

As for the deliveries, majority were safe ones, and mostly conducted by the health personnel. The activities of the Traditional birth attendents(TBA) were limited to the Birth Before Arrival(BBA). It is also noted that, nearly half of mothers depend on the health personnel's decisions for place of deliveries. The frequencies of the home visits are below Ministry of Health target, possibly due to larger occurance of preterm deliveries.

The commonest habit of the mothers was drinking coffee and very few were smokers.

Necessary actions should be taken to improve the effectiveness of ante-natal, intranatal, health educational procedures in Baling District. The

actions include improvement in ante-natal care, health education to the patient and public , the regular in-service training training of staff.

Besides that, the intensification of system's approach in solving the health problems of the mothers, should be encouraged. Further survey should be done in future in relation to stillbirths, so as to improve the infant mortality as a whole.

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ANNEX 1

KIK 1 Pindaan 1/83

KAD PRANATAL

No. K.P. IBU: _____

Klinik: _____ Tarikh: _____

Nama: _____ Bangsa: _____

Tarikh Lahir/Umur: _____ Pekerjaan: _____

Alamat: _____

Nama Suami: _____ Pekerjaan Suami: _____

Tarikh Perkahwinan: _____ Gravida: _____ Para _____

PERIHAL KANDUNGAN LALU:

Bil	Hasil Kandungan	Tahun	Tempat/Bidan	Jantina Bayi	Komplikasi	Keadaan Sekarang

Amalan perancang keluarga yang lalu: _____

PERIHAL KESIHATAN LALU:

	Tibi	Kencing Manis	Darah Tinggi	Lemah Jantung	Meroyan	Lain-lain
Ada						
Tiada . .						

PERIHAL KANDUNGAN SEKARANG

Bidan yang ditempah: _____ THA: _____ TAL: _____

Jangka masa mengandung: _____ Tempat: _____

KEADAAN KESIHATAN SEKARANG:

Kesihatan Am

Pergigian: _____ Berat Badan: _____ HB: _____

Urat Timbul: _____ Tekanan Darah: _____ Kumpulan Darah: _____

Jantung/Paru: _____ VDRL _____ Lain-lain _____

PELALIAN TETANUS TOXOID $\frac{1}{2}$

KEADAAN KAWASAN SEKELILING:

Keadaan Rumah–

Tandas: _____ Ganti Udara: _____

Bekalan Air: _____ Simpanan Makanan: _____

Saluran air limbah: ☐ Ada: Terbuka/Tertutup ☐ Tiada

Pembuangan Sampah:

☐ Dikambus ☐ Diangkat

☐ Dibakar ☐ Tidak memuaskan

☐ Lain-lain

TARIKH	KLINIK/ LAWATAN RUMAH	PEMERIKSAAN							PEMERIKSAAN LAB				MASALAH	NASIHAT/RAWATAN	Tarikh Lawatan Akan Datang
		Berat Badan	Tekanan Darah	Buah Dada	Jangka Masa/ Tinggi Rahim	Kedudukan Janin	Jantung Janin/ Gerak Janin	Kaki Bengkak	Kencing		HB	Lain Lain Butir			
									Albumin	Gula					

REKOD NATAL

Klinik _____ No. K.P. IBU: _____

Tarikh Bersalin: _____ Tempat Lahir: _____

Keadaan Ibu: _____ Jumlah Panggilan: _____

Keadaan Bayi _____ Berat Lahir: _____

JAGAAN POSTNATAL

	Lawatan ke Rumah (20 hari)	Lawatan ke Klinik (42 hari)	Nasihat Pemakanan Perancang Keluarga
Tarikh			
Suhu Badan			
Berat Badan			
Tekanan Darah			
Buah Dada			
Aliran Susu			
Aliran Vagina			
Tinggi Rahim			
Kaki Bengkak			
Kurang Darah (HB)			
Air Kencing Alb.			
Air Kencing Gula			
Pemeriksaan Vagina — Kemaluan			
Pemeriksaan Vagina — Episiotomy/Luka			
Pemeriksaan Vagina — Rahim/CX			
Pemeriksaan Vagina — Adnexa			

CATATAN: _____

Terima Perancang Keluarga: Ya/Tidak Cara: _____

Menyusu Bayi: Susu Ibu/Susu Botol

RINGKASAN LAWATAN

Masa Mengandung	Jumlah Lawatan ke Klinik	Jumlah Lawatan ke Rumah
0-27 minggu		
28-35 minggu		
36 + minggu – Natal		
Post Natal		

L-JPN.J.

ANNEX 2

PENYIASATAN KEMATIAN LAHIR MATI (STILL BIRTH).

NEGERI:.....

DAERAH: .....MUKIM:.....KAMPUNG:.....

TARIKH KEMATIAN ☐☐☐☐☐☐ UMUR ☐☐

TEMPAT KEMATIAN

Rumah Sakit Kerajaan ☐ Rumah (Lain-lain jelaskan).....

.....

Rumah Sakit Swasta. ☐

PERIHAL IBU.

NAMA IBU: .....

KAD PENGENALAN IBU ☐☐☐☐☐☐☐ UMUR ☐☐

BANGSA Melayu ☐ Cina ☐

India ☐ Lain-lain (Jelaskan).....

.....

Alamat/Ibu/Penjaga:.....

Pekerjaan Ibu: Pekerjaan Bapa:

Suri rumah tangga. ☐ Pertanian/Haiwan ☐

Pertanian/Haiwan ☐ Kerajaan. ☐

Kerajaan. ☐ Jelaskan:.....

Jelaskan:..... Nelayan ☐

..... Lain-lain (Jelaskan).....

.....

PERIHAL SEMASA MENGANDUNG DAN KELAHIRAN ANAK YANG MENINGGAL.

Semasa mengandung:

GRAVIDA ☐ ABOLTION ☐

PARA ☐ PREMATURE ☐ STILL BIRTH ☐

KEMATIAN 0-1 tahun ☐

PENYAKIT-PENYAKIT

Kencing Manis ☐

Sakit Kuning. ☐

Penyakit jantung (Jelaskan):.....

Lain-lain (Jelaskan): .....

TEMPAT BERSALIN DAN SAMBUTAN KELAHIRAN.

Hospital	DR	JURURAWAT	BIDAN Kerajaan
Hospital Bersalin Swasta.	DR	Jururawat	BIDAN Terlatih
Rumah	Bidan Kerajaan.	Bidan Kampong.	Lain-lain (Jelaskan). ....

Nama dan alamat Bidan Kerajaan:.....

.....

Nama dan alamat Bidan Kampung: .....

.....

SEMASA KELAHIRAN-STILLBIRTH ☐ ☐

Jenis Kelahiran - Biasa ☐ ☐

Luar Biasa. ☐

Prolonged ☐

Precipitated ☐

Induced. ☐

Pembedahan Caesar ☐

Forcep ☐

Melintang ☐

Menyonsang ☐

Janin lebih dari satu ☐

Lain-lain (Jelaskan):.....

.....

Jangkamasa mengandung ☐

Semasa pemeriksaan pertama; minggu ☐ Bulan ☐

Jumlah lawatan ke rumah oleh kakitangan kesihatan pada masa mengandung ☐☐

Jumlah lawatan ke klinik semasa mengandung ☐☐

Jenis lawatan ke rumah

Biasa ☐

Kes Khas ☐

Kes Cicir ☐

Tujuan lawatan kes khas:.....

.....

.....

Nasihat khas yang diberi dirumah:.....

.....

.....

KOMPLIKASI SEMASA MENGANDUNG:

Tekanan darah tinggi (130/90) ☐

Albumin dalam kencing. ☐

Gula dalam kencing. ☐

Bengkak kaki ☐

Pucat (Anaemia - / 9grams or 60% ☐

Muntah teruk. ☐

Turun darah ☐

Kedudukan janin luar biasa. ☐

Kandungan lebih dari satu ☐

Lain-lain (Jelaskan):.....

.....

V.D.R.L. POSITIVE ☐ R.H. NEGATIVE ☐

KEADAAN BAYI LEPAS DILAHIRKAN:

Biasa. ☐

Luar Biasa. ☐

Prematurity (Jelaskan) ☐

Port Maturity (Jelaskan) ☐

Birth Injuries. ☐

Jelaskan:./.....

Congenital Abnormalities

Jelaskan:.....

Lain-lain
(Jelaskan):.....

Berat Badan Semasa lahir; Kilogrames ☐

SEBAB-SEBAB KEMATIAN (Jelaskan):.....
.....
.....

KOMEN:.....
.....
.....

NAMA PELAPUR/JAWATAN:.....

ALAMAT KLINIK:.....T/TANGAN:.....

KOMEN:.....
.....
.....
.....

NAMA PENYELIA:..... T.TANGAN:.....

ANNEX 3

Data Abtraction Form For The Information Related To The Incidence Of Stillbirth In The District Of Baling,Kedah Darulaman - January 1987 to December 1991.

Serial No; +----+----+----+

R/N No ; +--+--+--+--+--+--+--+--+

Year ; +---+---+

PKB Kupang 01
PKB K.Ketil02
PkkTawar 03
- k Malau 04
Pkk Kg.Lallang 05
KKIK 06
Pkk p.Panjang 06

Operational area; +--+--+

Type of Case ; Local [ ] Outside [ ]

Address;----------

Section A ;Question to be asked during the interview;

A; PERSONAL DATA ;

A.1 Name ;----------

A.2 Age ;--------- A2.1 Height.....cm

A.3 Gravida ; +---+---+

A.4 Parity ; +---+---+ + Abortion +----+---+

A.5 Ethnicity ;

1.Malay 3.Indian

2.Chinese 4.Others.

If other,please specify

A.6; Did the mother practise family planning?

Yes [ ] No [ ]

If yes, please state the method

A.7; Status of Education:

1. Not Schooling [ ]
2. Primary school(Std 1-6)
3. Lower secondary school (1-3)
4. Upper secondary school (4-6)
5. College/University
6. Relogous school(Pondok)

A.8 Mother's occupation;

1. House wife
2. Self employed(sendiri)
3. Government servant
4. Private

For 2,3,4, Please state the occupation

A.9 Husband' occupation;

1. Unemployed
2. Self employed
3. Government servant
4. Private sector
5. Pensioner

6 No husband

For 2,3,4 please state the occupation

A.10; Family income;

1. <$175.00
2. $176 - $250
3 $251 - $350
4. $351 - $450
5. $451 - $550
6. $551 - $650
7. $651 - $1000
8. >$1,000

A11.Educational status of the husband;

1.no husband
2 Not schooling
3.Primary school(1-6)
4.Lower secondary school(1-3)
5.Upper secondary school(4-6)
6.University/college
7.Religous School(pondok)

A12.Did the mother smoke during pregnacy?

Yes [ ] No [ ]

If yes,please specify

----------cig/day

A13.Did the mother drink coffee regularly?

Yes [ ] No [ ]

If yes,Please specify

----------cup/day.

A14 did the mother drink alcoholic drinks?

Yes [ ] No [ ]

A15. Who decided the place of delevery?

1. Self decision
2. Husband
3. Father/mother
4. Grandmother/grandfather
5. Health personnel
6. Others .....

A16 Did the mother experience any accident/fall during pregnancy?

Yes [ ] No [ ]

A17 If Yes, please specify.....

B: OTHER SOCIO-ECONOMIC ASPECTS:

B1. Number of family members including father and mother who lived in the house?

B2. The type of house in which the family was staying?

1. Hut (attap House)
2. Wooden House
3. Brick house
4. Other

If others, please state

B3. Status of the house;

1. Fully owned
2. Rental
3. Squatters
4. others

If others, please specify

B4. How many rooms were in the house?

B5. Type of toilet in the house;

1. No toilet
2. Pit
3. Flushed
4. Others
   If other, please specify

B6. Type of water supply;

1. JKR water supply
2. Well
3. Gravity feed system
4. River or Stream
5. Others
   If others, please state

B7. Was there electical supply in the house?

Yes[ ] No[ ]

B8. Distance of the house to nearby clinic;

----------km

B9 Type of transport did the family posses;(can tick more than 1)

1. no transport
2. Bicycles
3. Car/Van
4. Motorcycle
5. Others
   If other, specify

B10. Did the family posses TV set?

Yes[ ] No[ ]

B11 Did the family posses radio set?

Yes[ ] No[ ]

C:FAMILY MEDICAL HISTORY:

C1.Maternal parents:

C1Mother

1.Diabetese mellitus 4.Bronchial asthma

2.Hypertension 5.Other

3.PTB Specify----------

C2.Father

1.Diabetese mellitus 4.Bronchial asthma

2.Hypertension 5.Others

3.PTB Specify ----------

Husband;

1Diabetese mellitus 4Bronchial asthma

2.Hypertension 5.Others

3.PTB Specify ----------

C4.How did the mother feel after the incidence of the stillbirth?

1.Normal 3.Eager te be pregnant again.

2.Depressed 4.Guilty

5.Did not Care-less 6.Others

Please specify

.....

FOR SECTION D ONWARD THE INFORMATION WILL BE AVAILABLE ON THE ANTE-NATAL CARD OR DEATH INVESTIGATION FORM;

D;PAST OBSTETRIC HISTORY;

D1

Bil	type	Year	Place	Sex	Complicatn	Outcome

E;MEDICAL HISTORY OF THE MOTHERS; +--+

1. Dibetese Mellitus
2. Hypertension
3. PTB
4. Bronchial asthma
5. Heart Desease
6. Others
   Specify _____
7. None

F;PRESENT OBSTETRIC HISTORY

F1;Date of LCB; +-+-+ +-+-+ +-+-+ +-+-+ +-+-+ +-+-+

F2;Date of LMP; +-+-+ +-+-+ +-+-+ +-+-+ +-+-+ +-+-+

F3;No of ante natal visits; +-+-+ +-+-+

F4. Interval compared to previous pregnancy;

1. Primy
2. > 1 year
3. 1-2 year.
4. 3-5 years
5 < 5 years.

+---+
| |
+---+

F5. First ante natal visit;

F5.1. POA; +-+-+ +-+-+

F5.2 Fundal height.....wk.

F5.3. Weight +-+-+-+-+-+-+ +-+-+-+-+-+-+ kg

F5.4 Systolic BP; +-+-+-+ +-+-+-+ mmhg

F5.5 Diastolic BP +-+-+-+ +-+-+-+ mmhg

F5.6 Hb level +-+-+-+ +-+-+-+ g/dl

F5.7 Height +-+-+-+ +-+-+-+ cm.

F6; Last ante natal visit;

F6.1 POA +-+-+ +-+-+

F6.2 Fundal Height .....weeks

F6.2 Systolic BP +-+-+-+ +-+-+-+ mmhg

F6.3 Diastolic BP +-+-+-+ +-+-+-+ mmhg

F6.4 Hb Level +-+-+-+ +-+-+-+ g/dl

F6.5 Weight +-+-+-+-+-+-+ +-+-+-+-+-+-+ kg.

G; Doctor's Referals;

G1. Was there any referal made to the doctor?

Yes[ ]. No[ ]

G2 If yes, at what gestation? .....weeks

G3 At what gestation she was last refered?

----------week

G4 Total number of referals;.....

C4.1 No of successful referals;.....

C4.2 No of unsuccessful referals;.....

H;STATE OF PREGNANCY;

H 1 ; Was it high risk Pregnancy;

Yes [ ] No [ ]

H 2; If Yes;

1.Primi	8.Age > 35
2.Age less than 19	9.PET
3.Aneamia	10.Multiple pgc
4.Diabetese mellitus	11.LCB >5 yrs
5.Abnormal lie	12.h/o LSCS
6. BOH	13 Heart deseases
7.Grand multip	

I ;ANTENATAL COMPLICATIONS;

I-1. What was/were the coplication during this pregnancy?

1. Aneamia [ ]
2. PET [ ]
3. urine albumin [ ]
4. Oedama [ ]
5. VDRL [ ]
6. Diabetese mellitus [ ]
7. Rh Factor [ ]
8. Painless Vergina Bleeding. [ ]
9. Others [ ]

If others specify.....

	ENTER CODE	
+	01	mild
++	02	moderate
+++	03	severe
	04	unknown

(for no 3-4)

2X	TR	Treated
-	NT	Not Treated
1X	DF	Default

(for no 5)

CT	controlled
UC	uncontrolled

For no 2 please proceed to qoestion I.2
For no 1 please refer to question I 3

I2.1 Did the mother experience preeclampsia during the pregnancy?

Yes [ ] No [ ]

I2.2 If the answer is yes, at what POA it was first detected?

.....week

I2.3Was she then refered to the doctor?

Yes [ ] No [ ]

I2.4 If the answer is yes,what was the outcome?

1.Advice for daily BP

2.Refered to the Hospital

3.Treated with hypertensive drug.

Specify.....(name of drug)

4.The mother defaulted.

5.Others,please specify

.....

I2.5 What were other complication of the PET;

1.Urine albumin [ ]

2 Oedama [ ]

3 Fit [ ]

4 Others

specify.....

I3.1.Did the mother had aneamia during the pregnancy?

Yes [ ] No [ ]

I3.2 If Yes ;

I3.21 Earliest Hb (aneamia);.....g/dl

I3.22 At what POA;.....week

I3.23 Lowest value of Hb;.....g/dl

I3.24 At what POA;.....week

I3.25 Any treatment given,

L4.51 Yes,please specify

.....

.....

.....

I3.3 Outcome of treatment;

1. Back to normal level
2. No change
3. Deteriorate.
4. Fluctuate
5. Others. specify.....

J;DELIVERY;

J1;What type of delevery?

Safe [ ] Unsafe [ ]

J2. If it was unsafe delivery;

BBA [ ] Purely Bidan Kampong [ ]

J3 Who conducted the delivery?

1. Doctor
2. Staff nurses
3. Government midwife
4. Bidan Kampong
5. Others, specify .....

J4. Any complication happened during the delivery?

Yes[ ] No [ ]

J5 If yes, what type of complication?

1. Prolong labour
2. Breech delivery
3. Intrumental delevery
4. APH
5 Cord round neck
6. Others
Please specify.....

K. OUTCOME OF THE PREGNANCY;

K1. What was the outcome of the pregnancy?

Macerated stillbirth [ ] Fresh Stillbirth[ ]

K2 If mecerated stillbirth;

Post Date [ ] Not post date [ ]

K3 If post date;ultra scanning was done or not?

Yes [ ] No [ ]

K4 If any scannings was/were done at what gestation it was first done?

----------weeks

K5 If it was a fresh stillbirth, please refer to question J5.

L;Miscellanous;

L1 Was the mother given Rubella immunisation?

Yes [ ] No [ ]

L2 Number of home visit made during ante-natal period;

Successful	
Unsuccessful	

L3 What was the feotal weight?.....kg

L.4 What was the cause of death?.....

ANNEX 4

1- CLASSIFICATION OF PRE-ECLAMPSIA :

	B.P.	OEDEMA	ALBUMIN
MILD	140/90	NIL	NIL
SEVERE	A.140/90	PRESENT	PRESENT
	B.140/100	PRESENT	PRESENT
	C.>140/90	WITH SYMPTHOMS -SEVERE HEADACHE -VOMITING -FLASHES OF LIGHT -EPIGASTRIC PAIN	

MANAGEMENT :

- If mild preeclampsia and less than 36 weeks gestation, refer to Medical and Health Officer

- If mild preeclampsia and more than 36 weeks gestation, refer to Hospital.

- If severe preeclampsia - must be referred to nearest Hospital for admission.

- If the blood pressure is less than 140/90, continous daily blood pressure should be done.

- If the blood pressure is 140/90 or more and without any complications such as oedama, excessive weight gain, or albuminuria, appropriate hypertensive drug should be prescribe by the the Medical and Health Officer. The mother must be follow within in week.

- If the blood pressure is 140/90 or more and with any of the above complications, hospital referral must be made.

- All cases should not be allowed to be post date.

2- DIFINATION OF ANEAMIA :

- SEVERE ANEAMIA : HB LESS THAN 8 GMS %

- MODERATE ANEAMIA : HB BETWEEN 8 - 9 GMS %

- MILD ANEAMIA : HB BETWEEN 9 - 10 GMS %

MANAGEMENT :

- Severe aneamia with Hb less than 8 gms should be referred to the nearest hospital.

- Moderate aneamia with Hb between 8 - 9 gms % ;

  - If less than 32 weeks gestation, refer to doctor in the Health Centre .

  - If more than 32 weeks gestation, refer to the nearest hospital.

- Mild aneamia with Hb between 9 - 10 gms %

  - If less than 32 weeks gestation, the staff nurse can treat the mother with the following haematinics:

    a- Oral iron or ferous fumerate tab b. d

    b- Folic acid 5 mg daily

    c- Vitamin B Co tab daily

    d- Vitamin C tab daily

  - If more than 32 weeks gestation, staff nurse should refer to doctor in Health Centre for Iron Dextran therepy.

  - Start with Iron Dextran injection daily for seven days. If there is no response after 4 weeks refer to hospital to exclude Thalassaemia or other rare causes of aneamia.

3- Treatment of Syphilis (Penicillin)

-Gestation less than 1 week:

-50,000 u/kg/day, IM or IV in two divided doses after test dose

-Gestation more than 1 week :

-50,000 u/kg/day, IM or IV in three divided doses, after test dose.

4- Management of Diabetes Mellitus.

-Control the condition appropriately with diabetic drugs

-Not to allowed the pregnancy to be post date.