

STUDY OF MATERNAL DEATHS IN KERIAN (1976 — 1980)

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SUMMARY

Maternal deaths in Kerian district during a 5 year period (1976 - 1980) is described. There were 35 maternal deaths in all and Malays constituted the majority 32 (91.4 percent). Most of the women were of low socio-economic status and only 20 percent had some formal education. The women were mainly multigravida and majority of them 20 (57.2 percent) were between 31 - 40 years of age. The main cause of death being PPH and PPH with retained placenta. Most of them died at home and were attended to by TBAs. The need to identify, train and utilise TBAs has been realised as they delivered about 41.4 percent of the deliveries in Kerian in 1976.

INTRODUCTION

A remarkable reduction in maternal mortality has been achieved in the developed regions of the world through improved health and living conditions and effective ante natal, intranatal and post natal care. ¹ However maternal mortality is still one of the main causes of death in females of reproductive age, (15-45 years). The relative magnitude of maternal mortality is determined by birth rates, abortion rates, size of fertile female population, overall MCH care coverage and health status of women and more general socio-economic influences such as social status of women.

In Peninsular Malaysia there is a sharp decline in maternal mortality rate from 1947 (maternal mortality 7 per 1000) to 1979 (0.79 per 1000). In Kerian a decline has also been noticed but not as sharp as the national figures.

The definition of maternal mortality confuses many and due to this, there is a substantial amount of under-reporting in maternal mortality. The inadequacy of our reporting system and the significance of reporting such deaths has not been realised. Reliable data is even more scarce for maternal morbidity.

The developing countries still face high maternal mortality and morbidity despite the various MCH programmes going on. Many countries have started the Risk Approach in MCH care which is considered a managerial tool for the flexible and rational distribution of existing resources, based on measurement of individual and community risk and for developing local strategies and determining the appropriate content of maternal and child health and family planning. ²

MATERIALS AND METHODS

All maternal deaths by residence which occurred in the district of Kerian from 1976 - 1980 were investigated. Deaths are recorded in the police station and hospital. All female deaths between the years 15 - 45 were investigated to identify whether it was a maternal death due to obstetrical cause or otherwise. Maternal deaths due to obstetrical causes in neighbouring hospitals were notified by notification forms.

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Each of the cases was investigated by the Public Health Nurse, Public Health Sister and the Medical Officer of Health before a report was made. All the maternal death reports from 1976 to 1980 were studied and a report compiled.

STUDY AREA

Kerian district is situated north west of Perak State. It is bordered by Province Wellesley and Kedah to the north, the Larut Matang and Selama district to the east and south. The district has an area of 331 square miles and a population of 157,649 (1981 census). Most of the district is low-lying and water logged. Almost 40 percent of the district is padi land. The population consists mainly of Malays (65 percent) Chinese (22.4 percent) and Indian (12.3 percent). The main occupations are farming, fishing and rubber tapping.

The health infrastructure consists of one district hospital with 141 beds, 8 health centres and 32 midwife clinics. The MCH care is provided by the midwife clinics and health centres.

RESULTS

The total number of deliveries in Kerian from 1976 to 1980 was 22,977 (Table I). The hospital deliveries constituted 7040 (30.6 percent), the government midwives 6395 (27.8 percent) and Traditional Birth Attendants 9505 (41.4 percent). Thus the hospital and government midwives constituted 13,435 (58.4 percent) of the total deliveries. Kerian district has a high number of TBAs. In 1980 there were a total of 109 TBAs practising of which 94 were registered and 15 unregistered. In the similar period there were 37 midwives. Before 1976 the government midwives

were looked upon with suspicion by the TBA and they were underutilised because of the high number of TBAs. In 1977 High Risk project for MCH was launched when the TBAs were identified and trained and this has changed the attitude of the TBAs. In 1976 there were 18 deliveries per TBA as against 37 deliveries per government midwives. In 1980 there were 14 deliveries per TBA as against 39 by the government midwives. There is also an overall drop in the number of deliveries by TBAs from 1976 to 1980. In 1976 the TBAs delivered 47.2 percent deliveries as against the government midwives' 1095 (23.3 percent) and in 1980 the TBAs delivered 1613 (36.1 percent) as against the government midwives' 1345 (30.1 percent). Thus there was a decline in the number of deliveries conducted by TBAs as against the government midwives. This suggests that there is a trend to utilise qualified personnel more than the untrained or unqualified personnel. The period 1976 to 1980 also showed a decline in the various mortality rates (Table II). The infant mortality rate which is 27.11

TABLE II
HEALTH STATISTICS OF KERIAN (per 1000)
1976 - 1980

Year	Infant Mortality rate (per 1000 live births)	Toddler Mortality rate (per 1000)	Maternal Mortality rate (per 1000 live births)	Crude Birth rate	Crude Death rate
1976	40.52	3.0	1.89	26.15	5.70
1977	34.27	2.99	2.46	25.54	4.71
1978	27.42	1.80	1.98	23.77	4.48
1979	29.50	2.12	2.06	23.26	4.09
1980	27.11	1.87	1.10	22.47	4.01

TABLE I
LIVE BIRTHS IN KERIAN BY PERSONNEL OF DELIVERY

Year	Hospital Deliveries		Govt. Midwives		TBAs		Maternity Homes		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1976	1386	29.5	1095	23.3	2218	47.2	-	-	4699	100
1977	1289	27.5	1327	28.3	2071	44.2	-	-	4687	100
1978	1329	29.6	1421	31.7	1735	38.7	-	-	4485	100
1979	1550	33.4	1207	26.0	1868	40.2	18	0.4	4643	100
1980	1486	33.3	1345	30.1	1613	36.1	19	0.4	4463	100
Total	7040	30.6	6395	27.8	9505	41.4	37	0.16	22977	100

TABLE III
MATERNAL DEATHS BY ETHNIC GROUP AND
YEAR, KERIAN (1976 - 1980)

Year	Total Live Births	Ethnic group			Total
		Malay	Chinese	Indian	
1976	4699	8	1	-	9
1977	4687	7	-	-	7
1978	4485	7	1	1	9
1979	4643	5	-	-	5
1980	4463	5	-	-	5
Total	22977	32	2	1	35
%		(91.4)	(5.7)	(2.8)	(100.0)

per 1000 declined by 33 percent from 1976 to 1980 and toddler mortality rate declined by 37.7 percent from 1976 to 1980, but the most significant decline was maternal mortality which declined from 1.89 per 1000 live births to 1.10 per 1000 live births which registered a 41.8 percent decline. There were a total of 35 maternal deaths registered from 1976 to 1980 in the district (Table III). Ethnically the Malays constituted 32 (91.4 percent) of all deaths and Chinese 2 (5.7 percent) of all deaths with Indians with 1 death (2.8 percent). Most of the women (80 percent) were from the lower income group. The education level showed that only 7 (20 percent) of these women had some form of formal education. Majority 28 (80 percent) had no formal education at all. All the mothers had ante-natal check up and the number of ante-natal visits ranged from 1 to 7 visits in all the cases.

Majority 19 (54.3 percent) of them died at home and 15 (42.8 percent) of them died in the hospitals. The nearest hospital was within 25 km away. Only 1 woman died en route to hospital.

Table IV (a) shows the gravidity of women who died. Most of the women died at gravida 6-9 (28.5 percent). It is important to note that all gravida 1 and gravida 6 and above are advised to deliver in hospital. Gravida 1 had 8 or 22.8 percent of all maternal deaths.

Table IV (b) shows the parity of the maternal deaths. It is seen that para 0 consisted of 9 (25.7 percent) of all maternal deaths and para 6 and above consisted of 11 (31.4 percent) of all maternal deaths. Thus para 0 and para 6 and above consisted

TABLE IV (a)
MATERNAL DEATHS BY GRAVIDA
KERIAN 1976 - 1980

Year	Gravida				Total
	1	2 - 5	6 - 9	10 & > 10	
1976	4	-	3	2	9
1977	-	3	2	2	7
1978	2	2	4	1	9
1979	1	1	1	2	5
1980	1	3	-	1	5
Total	8	9	10	8	35
%	(22.8)	(25.7)	(28.5)	(22.8)	(100.0)

TABLE IV (b)
MATERNAL DEATHS BY PARITY

Year	Parity					Total
	0	1-2	3-4	5-6	6 & > 6	
1976	4	0	0	3	2	9
1977	1	1	1	1	3	7
1978	2	1	1	3	2	9
1979	1	1	0	0	3	5
1980	1	1	2	0	1	5
Total	9	4	4	7	11	35
%	(25.7)	(11.4)	(11.4)	(20)	(31.4)	(100.0)

of 20 (57.1 percent) of all the maternal deaths during 1976 to 1980 in the district.

Maternal deaths by age showed (Table V) that 10 (28.6 percent) were in 31-35 years and 10 (28.6 percent) were in 36-40 years age group. Thus those in the 31-40 years age group had (57.2 percent) of the maternal deaths. There were no deaths < 16 years and > 45 years of age.

The causes of maternal mortality is listed (Table VI). It is noticed that PPH and PPH with retained placenta were the main causes of the maternal deaths. The two causes constituted 60 percent of the maternal deaths, HDP was minimal in causation of maternal deaths. In 1980 all 5 maternal deaths were due to PPH with retained placenta.

Table VII examines the maternal deaths occurring in various categories of delivery. It was noticed that those handled by TBAs constituted 18 (58.1 percent) the highest number of maternal

TABLE V
MATERNAL DEATHS BY AGE AND YEAR
KERIAN 1976- 1980

Age	Year					Total	%
	1976	1977	1978	1979	1980		
> 16	-	-	-	-	-	-	-
16 - 20	2	-	-	1	-	3	(8.6)
21 - 25	1	1	3	1	2	8	(22.6)
26 - 30	1	-	-	-	1	2	(5.7)
31 - 35	3	1	4	1	1	10	(28.6)
36 - 40	2	4	2	1	1	10	(28.6)
41 - 45	-	1	-	1	-	2	(5.7)
> 45	-	-	-	-	-	-	-
Total	9	7	9	5	5	35	(100)

TABLE VI
MATERNAL DEATHS BY CAUSE
KERIAN 1976 - 1980

Causes	Year					Total	%
	1976	1977	1978	1979	1980		
PPH	3	2	1	1	3	10	(28.6)
PPH with Retained Placenta	3	2	2	2	2	11	(31.4)
HDP	-	1	2	1	-	4	(11.4)
Cardiac Complication	1	1	-	1	-	3	(8.6)
Other Medical Condition	1	-	2	-	-	3	(8.6)
Puerperal Sepsis	1	1	1	-	-	3	(8.6)
Others	-	-	1	-	-	1	(2.9)
Total	9	7	9	5	5	35	(100.1)

TABLE VII
MATERNAL DEATHS BY PERSONNEL OF DELIVERIES KERIAN 1976 - 1980

Year	Qualified Personnel Doctors, Nurses	Govt. Mid-wives	TBA'S Kpg. Bidan	Mater-nity Homes	Total
1976	2	2	4	-	8
1977	1	1	4	-	6
1978	4	1	2	-	7
1979	-	2	3	-	5
1980	-	-	5	-	5
Total	7	6	18	-	31*
%	(22.5)	(19.4)	(58.1)		(100)

* 4 Deaths during Ante-Natal period.

deaths from 1976 to 1980. The government midwives attended to 6 (19.4 percent) and the Hospital Staff had 7 (22.5 percent) of all the deaths. Amongst these, 4 women died during the ante-natal period.

DISCUSSION

There has been a significant reduction of maternal deaths in the district since 1976 and this has been due partly to the emphasis given to MCH programmes, by way of application of the High Risk Approach in MCH Care.

Though there has been a decline noted in the utilisation of TBAs from 1976 to 1980, the significant role played by the TBAs in MCH care cannot be denied. For instance they attend to ante-natal care and post natal nursing. Moreover from 1976 to 1980 it has been realised that 18 (58.1 percent) of maternal deaths occurred in cases attended by TBAs. There may be an association between the TBAs harmful practises during labour. Chen ³ has described these practices in detail. The need to identify, train and utilise the TBAs as part of the Primary Health Care component is realised and is in line with the aspirations of WHO Primary Health Care for all by the year 2000.

It is seen in this study that the majority (60 percent) of the deaths have been due to PPH and PPH with retained placenta. It has been described ⁴ that toxæmia is one of primary causes of death in the developed countries where it accounts for 25 percent - 35 percent of all maternal deaths. But in Kerian PPH constitutes a major problem amongst the deliveries and earlier it has been noted that the TBA deliveries constituted 58.1 percent of all maternal deaths. It implies therefore that the TBAs may not be managing the second and third stages of labour well. Chen ⁵ noted that so long as the labour is normal the TBA would not interfere and the outcome is satisfactory. However once the labour is prolonged she may massage the uterus and try by external pressure to forcibly expel the fetus, as a result rupture of uterus may occur. Similar findings have been noted by others. ^{6,7}

In this study from 1976 to 1980, there were 35 maternal deaths in all and ethnically the Malays constituted 32 (91.4 percent) or majority of the deaths. Most of the women (80 percent) were from lower income group and only 20 percent had some form of formal educations. It was noticed ⁸ that education amongst women was associated with a

four fold decrease in maternal mortality, five fold decrease in perinatal mortality and nearly three fold decrease in prevalence of low birth weight babies. It is surprising to note that all the women had ante-natal check up either in the Health Centre or Hospital in spite of their low educational level. Similar findings were obtained (unpublished data) during the collection of data for Risk Approach in MCH care.

In spite of the ante-natal care, majority 19 (54.3 percent) of the women were delivered at home and were attended to by the TBAs. Several factors such as biological, social, environmental, economical, availability of communication and health care facilities have been identified but in this community, lack of communications and the role of TBAs are two major factors which cause maternal deaths. The socio-cultural habits also play a significant role.

The TBAs exceed the number of government midwives in the district and they delivered between 38 - 47 percent of the deliveries in Kerian from 1976 - 1980.

The TBA may cause a delay especially when she has a complication, and further compound it by calling the medicine man instead of sending the woman to the hospital. Sometimes when the TBA perceives an undue delay of placenta separation⁵ she will hasten the process by massaging the uterus and force the placenta out by pulling on the umbilical cord. Inversion is a risk but more commonly post partum haemorrhage will ensue.

There is a large number of TBAs in the district and a continuing need to identify, train and utilise the TBAs. Since 1977 the TBAs have been identified and trained and are being utilised. These TBAs were provided with a delivery kit and are now being supervised weekly by the nearest Public Health Nurse. There has definitely been improved delivery of MCH care and increased rapport between the government midwives and the TBAs.

This may have been partly responsible for the significant reduction in maternal deaths in the district since 1976, though communication and other factors also play a part.

ACKNOWLEDGEMENTS

I wish to thank Dr. Haji Abd. Talib bin Latiff Director General of Health Services for allowing me to publish this data. I also wish to thank Sister Chia Hock Suan for collection of data and Puan Hamishah bt Haji Samsury for typing the manuscript.

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