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Need of Organisation of Antenatal and Intrapartum Care in India

INDIA is one of the earliest among the developing countries to recognise the importance of maternal child health care, plan and organise the health infrastructure to provide MCH care to millions of rural women and children. The National Health Policy has clearly identified MCH care as a priority and has dcfinded specific targets for reduction in maternal and infant mortality and morbidity. Over the last three decades, expansion of the MCH services have been planned in rural areas. Visits to rural centres show that hospitals inpatient and outpatient facilities are crowded, and medical and paramedical persons are over-worked. Thus it may appear at first sight that availability and utilisaton of essential health care services have occurred and inevitably improvement in health status would follow. There had been very few studies to evaluate on a nation-wide basis the impact of the expansion of health service on maternal and child heath. An indirect assessment could, however, be made from the national health statistics. Available information from these sources suggests that over the last three decades some of the indices of MCH care like low birth weight and prematurity rates and perinatal and neonatal mortality have not shown the decrease commensurate with expansion of health services.

It is possible that an attempt to cover the entire vulnerable population (pregnant and lactating women, infants and children) all over the country, with available limited health man power resources, has been too thinly spread. This might have prevented effective functioning and resulted in the lack of perceptible impact in terms of reduction in low birth weight and neonatal mortality.

One of the solutions to these problems might be further expansion of health man power in the country. However, paucity of resources come in the way of such an expansion. It has been suggested that while dealing with problems of large magnitude with available limited resources adapting a risk care approach might pay higher dividends in terms of reduction in morbidity and mortality.

It is also increasingly realised that expansion of health services alone is unlikely to achieve health targets. It is essential that attention need be paid to:

(a) the coverage of the population;

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(b) quality of health care provided including screening procedure for identification of problems and treatment of identified problems;
(c) ensuring that the health hierarchy is established and functions effectively in the health system;
(d) defining the role of the individual and the community in health care and ensuring community participation.

Realising the urgent need to initiate appropriate remedial measures to improve delivery of MCH care services, if the goal set by National Health Policy for MCH care are to be achieved within the available short period of a decade, several health services research studies have been carried out during the last 10 yeais. The major focus in these research studies were on:

(a) basic technical issues on provision of MCH care such as
  (i) methods for identifying factors associated with poor obstetric out come;
  (ii) methods by which all pregnant women could be screened so that risk could be recognised and treated/referred; and
  (iii) appropriate AN, IP interventions;
(b) perceptions of the health care seekers and health care providers regarding MCH care; and
(c) organisational problems in providing care and appropriate remedial measures.

In the present paper results from some of the major studies have been reviewed with special attention to their implications regarding (re) organisation of MCH care services in India.

Maternal Risk Factors Associated with Low Birth Weight

Community-based and hospital-based studies have shown that birth weight and gestational age are critical determinants of survival (Table 1).

Several health, nutritional and obstetric factors have been shown to affect the birth weight. The prevalence of the various maternal factors and their impact on birth weight shows significant differences between countries and even between different segments of the communities in the same country.

Primiparity, teenage pregnancy, maternal height below 145 cm, maternal weight below 40 kg, previous bad obstetric history and pregnancy complications during the present pregnancy including pregnancy induced hypertension result in marked reduction in the mean birth weight (Table 2). These suggest that in the urban as well as in the rural communities, a group of women at higher risk of delivering a low birth weight infant can be identified, on the basis of history and simple examination (Tables 2 and 3).
However, this screening procedure is not very useful in identifying the woman at risk of delivering a low birth weight infant (Tables 2 and 3).

TABLE 1 : MORTALITY IN RELATION TO BIRTH WEIGHT AND GESTATIONAL AGE

Birth weight (g)	*<2000*		*2000-2250*		2260-2490		2500-2990		*>3000*	
Gestational age (weeks)	*<37*	*>37*	*<37*	*>37*	*<37*	*>37*	*<37*	*>37*	*<37*	*>37*
Total No.of deliveries	233	87	65	159	39	240	102	1442	1	1093
Total No. of live births	164	61	54	150	38	234	97	1419	1	1080
Total No. of deaths	107	31	13	11	2	6	6	30	-	14
Perinatal mortality rate	652.4	508.2	240.7	73.3	52.7	25.6	61.9	21.1	-	12.9
Neonatal mortality rate	231.7	81.9	38.5	13.3	26.3	-	9.8	4.9	-	0.9

TABLE 2 ;: MATERNAL RISIK FACTORS ASSOCIAT1 ED WITH LOW : BIRTH WEIGHT

Maternal risk factor	*Mean birth weight(g)*	*% Prevalence of maternal risk factors in women who delivered infants weighing*	
		> 2500 g	< 2500 *g*
Teenage pregnancy	2553 ±598	11.0	16.9
Primiparity	2543 ± 519	23.3	37.8
Height below 140 cm	2331 ± 417	1.0	2.9
Weight below 40 kg	2453 ± 455	9.9	28.8
Haemoglobin less than 8g/dl	2530 ±428	9.9	22.5
Previous bad obstetric history	2520 ±421	2.2	18.1
Current obstetric problems	2506 ± 446	5.8	32.6
% of women with none of these risk factors	-	59.8	23.1
% With one risk factor	_	40.2	76.9
% with more than one risk factor	-	14.7	30.7

During the last five years, several attempts have been made to evaluate simple measurement of fundal height and abdominal girth during pregnancy as a method of assessment of foetal growth. Fundal height and abdominal girth measurements are of use in the detection of intrauterine growth patterns both in urban and in rural communities. Studies undertaken at the National Institute of Nutrition (NIN), Hyderabad and elsewhere have demonstrated that fundal height and abdominal girth show a progressive increase with increasing gesta-

tional age (Figs. 1 and 2). After 37 weeks of gestation, there is a very high degree of correlation between fundal height and abdominal girth and birth weight. The risk of low birth weight steeply increases in women whose abdominal girth and fundal height measur-ments were below 2 SD values for that particular period of gestation.

TABLE 3: MATERNAL RISK FACTORS IN URBAN AND RURAL WOMEN ASSOCIATED WITH LOW BIRTH WEIGHT

Maternal risk factor	*% Prevalence ofriskfactors in women who delivered infants weighing*			
	> 2500 g		*<2500g*	
	Urban	*Rural*	*Urban*	*Rural*
T eenage pregnancy	110	284	169	384
Pnmipanty	233	209	378	406
Height below 140 cm	10	06	29	26
Weight below 40 Kg	99	189	288	386
Haemoglobin < 8g/dl	99	172	225	162
Previous bad obstetric history	22	06	182	89
Current obstetric problems	58	56	326	248
% with single risk factor	598	574	231	216
% with one or more risk factors	402	426	769	784
Number of women studied	26380	11040	8230	5140

Serial estimations of fundal height and abdominal girth provide valuable information regarding intra-uterine growth. Fall in serial measurements to values below the earlier observed percentile values in relation to gestational age and persistent low abdominal girth and fundal height measurements are indicative of intrauterine growth retardation. This simple test can therefore be used to screen all women and identify women at risk of deli vering infants below 2.5 kg and refering them to hospitals for safe delivery and neonatal care.

Components of Minimum Antenatal Care

Obstetricians advise that antenatal care should begin at the latest, 6 weeks after the last menstrual period. Most of the low income group women in both urban and rural areas do not avail of antenatal care facilities. If at all they report to the hospital or health centre, they do so by about the 20th week of gestation. Most of these women seek the advice of antenatal care in the third trimester or when they fall ill. Studies undertaken to investigate the impact of antenatal care initiated at the 20th or 30th week of gestation on birth weight and perinatal mortality showed that even when antenatal care was begun as late as the third trimester, there was a substantial reduction in perinatal mortality. There was some improvement in birth weight, though this was not as significant as the improvement in birth weight and reduction in perinatal mortality observed when antenatal care was started during the second trimester.

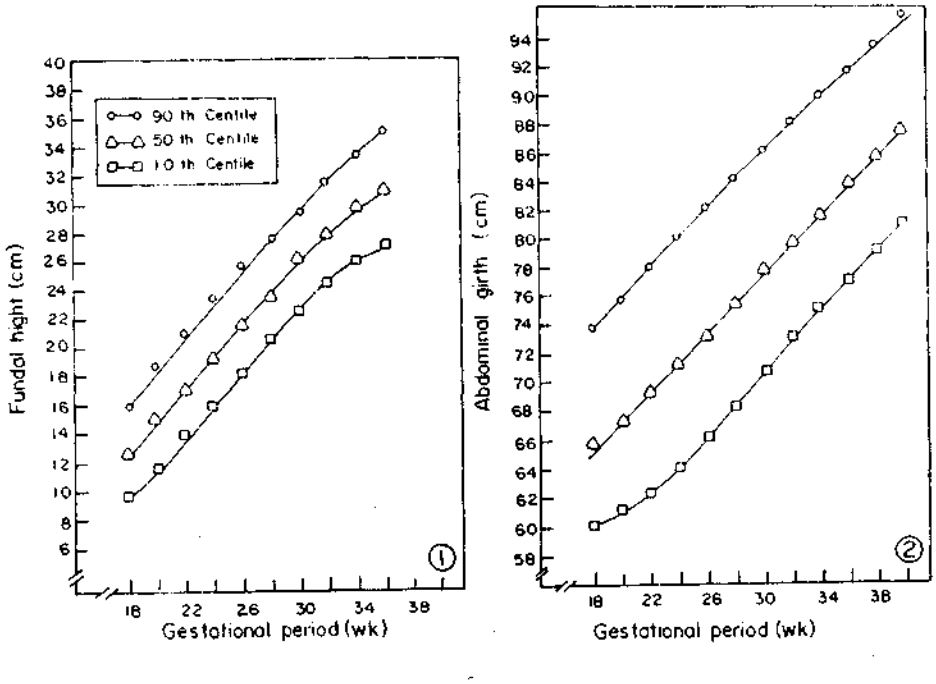

Fig. 1 Fundal height in different heights of gestation (National Institute of Nutrition 1980, Annual Report, p. 87.)

Fig.2. Abdominal girth in different periods of gestation National Institute of Nutrition, (1980. Annual Report p. 88).

In the classical context, the schedule of antenatal care consists of three visits in the first trimester, four visits during the second trimester and six visits during the third trimester of the pregnancy. Substantial proportion of even urban middle income group of women are unable to seek antenatal check-up 8-10 times during the last 20 weeks of pregnancy. In rural communities, it is very difficult for the Auxiliary Nurse Midwives (ANMs) or Obstetricians to reach the far-flung villages at frequent intervals to perform antenatal check-ups. It is, therefore, essential to determine the minimum number of antenatal check-ups and the time at which these could be done in order to detect the maximum number of risk factors during the later half of the pregnancy.

TABLE 4: EFFECT OF ANTENATAL CARE ON BITH WEIGHT

Group	Age (y)	Parity	Height (cm)	Weight (kg)	Haemo-globin (g/dl)	Birth weight (g)	Gestational age (weeks)
A No antenatal care (2832)	24.3 ± 4.68	2.56 ± 1.43	151.4 ± 5.64	45.4 ± 7.23	10.8 ± 2.37	2710 ± 492	39.1 ± 1.68
B Antenatal care from second trimester of pregnacy (149)	23.6 ± 4.14	2.59 ± 1.44	151.4 ± 5.13	47.0 ± 6.53	11.6 ± 1.44	2964 ± 370	39.2 ± 1.66
C Antenatal care from third trimester of pregnancy (58)	24.4 ± 4.46	2.38 ± 1.21	151.6 ± 4.25	45.6 ± 4.53	11.0 ± 1.40	2770 ± 391	39.4 ± 1.39

Studies undertaken in the NIN, Hyderabad, suggest that the first examination snould be conducted, at the latest, by 20 weeks of gestation for identification of the following risk factors: (i) women with previous obstetric problems; (ii) systemic disorders; (iii) women with haemoglobin(Hb) levels below 8 g/dl; (iv) body weight less than 40kg and (v) height less than 145 cm. Women in whom no risk factor has been identified could be subsequently seen at 28 weeks, at which time the following risk factors could be identified: (i) weight gain less than 1 kg; (ii) rise of blood pressure to 130/90 mm of Hg; (iii) fundal height and abdominal girth below 10th centile for the gestational age or fall in fundal height and abdominal girth to lower percentile values than what were observed at the earlier period of gestation and; (iv) identification of obstetric problems like twins hydramnios.

In the low risk group, the subsequent two visits at 34 and 38 weeks are aimed at detection of a high risk group on the basis of (i) weight gain less than 1 kg since 28 weeks; (ii) rise in blood pressure to 130/90 mm of Hg; (iii) fundal height and abdominal girth measurements below 10th centile for gestational age or fall to the percentile below those observed in the earlier examination; (iv) detection of obstetric problems; and (v) in the last examination, detection of abnormal positions and presentations along with evidence of disproportion.

A single Hb estimation by eyanmethaemoglobin method, if done at 20 weeks, is sufficient to detect women with severe grades of anaemia associated with functional decompensation. None of the women who had haemoglobin levels more than 9 g/dl at 20 weeks of pregnancy, subsequently had a fall in Hb below 8 g/dl at delivery.

Blood pressure examination at 20,28,32 and 38 weeks resulted in the detection 76 per cent of all women who developed pregnancy induced hypertension. Intrauterine growth retardation was correctly identifed by fundal height and abdominal girth measurements

delivered low birth weight infants. Twenty percent of women with values below the 10th centile delivered infants of normal birth weight. These data suggest that a minimum of four antenatal visits with the first check-up by 20 weeks* and at 38 weeks, is necessary for detection of some of the major risk factors associated with low birth weight.

Screening, Identification and Care of Low **Birth** Weight Neonate

The continued high perinatal and neonatal mortality rates in developing countries have been a source of concern to health planners and administrators. Prematurity and low birth weight are the two major causes of perinatal and neonatal mortality and attempts are being made to strengthen antenatal care service with a view to reduce them. However, some years might elapse before the impact of this strategy in terms of reduced neonatal mortality rate becomes obvious.

Another approach is to identify the 'at risk'. Low birth weight and premature infants soon after birth and ensure transport to appropriate health facility where they could be given adequate care. It is expected that provision of adequate care of these at risk neonates would cause immediate perceptible reduction in neonatal mortality rates.

Majority (70-90%) of deliveries in India are conducted by traditional birth attendants of relatives at the women's home. Facilities for weighment of infants are at the moment not available in rural homes. It is essential that appropriate technology for weighment at birth is made available so that the low birth weight could be identified and referred to adequate care.

National and international agencies have developed and tested balances for use in traditional rural settings in developing countries. Several studies in India have clearly demonstrated that using simple, if necessary color coded balances, TBA/ANM can weigh neonates at birth, detect the risk and refer them to hospitals.

Now that it has been shown that screening and identification of 'at risk' neonates could be undertaken by the person conducting the delivery at home, efforts may be made to persuade the village panchayat to arrange for transport of high risk neonate to the appropriate hospital. It may be explained that this contingency is likely to happen only once or twice in a month. Once the infant reaches the hospital, the provision of adequate neonatal care is an achievable task.

Quality of Care

All the studies carried out in India have identified anaemia, under-nutrition, and toxaemia as major factors responsible or high maternal and perinatal morbidity and mortality. However, organised screening for early detection of these and management o these problems does not appear to have received the attention that it deserves in the available antenatal care packages. Weighment during pregnancy, tests or detection of anaemia and PIH are done in hospital set-up, but not in community-based rural services. Thereore, majority (over 75 percent) of women with these problems continue to remain undetected and untreated. Under these circumstances, it is hardly surprising that neither the prevalence of these problems,

* at the latest followed by visits at 28± 2 weeks, 34 ± 2 weeks.

nor their adverse maternal and perinatal consequences have shown any major decline in the last 3 decades.

During the last 5 years some evaluations of the functioning of National Anaemia Prophlaxis Programme have been attempted. Results of these studies indicate that

(a) there are numerous logistic problems in production, storage and distribution of required number of iron and folic acid tablets to primary health centres;
(b) in many areas identifying pregnant women and reaching 100 tablets to these women are difficult;
(c) women do not take these tablets because they do not have any illness symptoms, cannot find an improvement on taking tablets and may infact develop side effects;
(d) between 50-80% of the pregnant women are anaemic; they require more than a single tablet of iron and folic acid, for correction of anaemia. Screening for anaemia and prescribing iron therapy for anaemia is confined mainly to hospital and does not reach the women who do not attend a clinic.

The tetanus prophylaxis programme has fared better than the anaemia prophylaxis programme. People's awareness and utilisation of tetanus immunisation during pregnancy varies in different regions of the country. All available data indicate that there has been a steady and progressive improvement in percentage of women immunised with TT. However, it is a matter of concern that the improvement has been most rapid and marked in some states like Kerala, Tamil Nadu, and Maharashtra, where tetanus neonatoream is uncommon and least in UP, Bihar where tetanus is a major cause of neonatal death.

Yet another intervention is the efforts to provide food supplementation to pregnant and lactating women through ICDS programme. The programme has brought several indirect benefits to mothers and the offsprings. The Anganwadi worker does know the pregnant women in the village and he acts as a focal point where MCH service can be and are being provided. But the available data from diet and nutritional surveys suggest that food intake of pregnant or lactating women in these villages have not improved markedly because of the inevitable food substitution and sharing in the family. Consequently, there had not been any demonstrable improvement in maternal nutritional status. The programme does not aim at identification of 'at risk' undernourished women (weight below 40 kg, weight gain below 1 kg/month) and ensuring improvement in dietary intake in these women through food supplements.

All these studies indicate that if substantial improvements in maternal health and obstetric performance are to be expected, the existing programmes may require modifications to improve the 'quality' of care provided so that 'at risk' group of individuals could be identified and provided with appropriate care.

Urban-Rural Differences in MCH Care

It is often said that one of the major factors responsible for the continued high perinatal and neonatal mortality rates is poor availability of health care in rural areas where majority

of India's population resides. It has been stated that only about 20% medical personnel work in rural areas where 7 5 per cent of India's women and children reside. Lack of transport and communication facilities between villages and the neighbouring health facility often comes in the way of even utilising the available health care in rural areas. The fact that referral services of any type are conspicous by their absence in rural areas is yet another factor which comes in the way of efficient utilisation of available health facilities. It is often suggested that if these three problems are soned out health care and health status of women and children will improve rapidly.

Analysis of some of the data on perinatal, neonatal and infant mortality rates in urban areas shows that, though in some cities there has been substantial reduction in these indices during the last three decades, several cities continue to record high perinatal and neonatal mortality rates. In the urban areas there is no dearth of health facilities. In fact 80 per cent of health personnel reside in urban areas and take care of health needs of 25 per cent of India's population who live in urban areas. A network of maternal and child health clinics exists and takes care of the MCH needs of 50,000 population, Auxiliary nurse midwives take MCH care right to the patients door steps. MCH clinics have the facility of referring their high risk cases to the nearby large hospital. In urban areas there are no transport bottle necks or communication problems. However, in spite of the availa bility of all these facilities, neonatal and perinatal mortality rates remain high in some of the cities in India. There has been a growing feeling that this might be attributable to poor utilization of available health care facilities by the segment of population which is badly in need of health care, e.g., the 'at risk' population group including all urban poor and the most vulnerable ones being the recent rural migrants living in slums, pavements and construction sites. It is possible that a similar situation exists to some extent even in rural areas at least in towns in spite of MCH care facilities in the vicinity.

Factors Responsible for Poor Utilisation of Health Services

Studies undertaken during the last decade have shown that factors responsible for poor utilization of available health services might lie with:

(a) the woman herself;
(b) the socio-economic system in which she exists;
(c) the problems of communication and transport;
(d) the peripheral health care personnel who are to take the health care to the patients' s door step;
(e) the PHC/MCH centre;
(f) the referral system; and
(g) referral hospital,

The Woman Herself

Several of the studies undertaken by the various agencies including Indian Council of Medical Research have shown that many women do not consider antenatal care as important.

An attitude survey undertaken as a part of ICMR collaborative study on risk care approach indicated that in Delhi many women from the older ages are uneducated group who consider *antenatal* care as not essential because pregnancy is a physiological event and does not require medical care.

In Madras and Calcutta, irrespective of age, educational status, occupation and income, women have realised the importance of antenatal care and stated that they would at least like to seek antenatal care indicating that there are marked regional differences even in urban population groups. The study shows that among the rural women awareness and a desire to utilise available antenatal facilities was seen only among the younger educated segments. Majority of women in many of the rural areas seek antenatal care in the third trimester or only if they feel ill. Obviously, unless the desire to seek the antenatal care exists, it is difficult to ensure that women do avail of the existing facilities.

An analysis of data from the centre study further showed that irrespective of region or urban rural residence almost all the women indicated that they would like to have doctor to do the antenatal examination. Many did not perceive the ANM as the person with whom they would like to have ANC. When asked for the reasons the illiterate women indicated that they considered the ANM as a young woman with very little knowledge and skills. The more educated segments of population stated that she could not do weighment, blood pressure check up and blood examination which are considered as the essential parts of antenatal chek up. Thus it is obvious that the ANMs, who are the functionaries to provide the antenatal care in urban and rural areas, are not accepted because they cannot carry out the minimum screening procedures and, consequently, are unable to detect and refer/treat women with obstetric problem. It is possible that this might be one of the major factors responsible for the lack of utilisation of the outreach of antenatal care facilities both in urban and rural areas.

Many women indicated that they would like to have ANC in a hospital, but were unable to do so. Almost all hospitals run antenatal clinics in the morning hours usually between 0800-13.00 hours For a poor woman this timing is very unsuitable. Often the OPD is over-crowded and she has to spend 2-3 hours in the clinic. In most hospitals the clinics use assembly line technique for antenatal check up. The woman has to go from one person to get obstetric history written to the next for BP check, to the third for weighment and so on. She reaches the obstetrician after passing through nearly a dozen hands. A cursory examination is done at the end of one hour and some medication is prescribed. There is obviously no attempt to build the rapport by the overworked clinicians, because of over crowding in the OPD. Under these circumstances, it is hardly surprising that the woman feels lost and does not return to the clinic unless she feels ill.

If clinics could be run at hours convenient to the women, better attendance could be ensured. If low and high risk cases are identified at each visit and the subsequent actions expected from the pregnant woman is explained to her, she would cooperate and come to

the clinic as and when needed. Once the rapport is built up further provision of MCH and contraceptive care becomes relatively easy.

In some cities like Calcutta and Madras, majority of women seek hospital deliveries. However, data from ICMR collaborative study indicated that in Delhi nearly a third of deliveries take place at home. In rural areas, majority of deliveries occur at home in all regions. It is significant to note that majority of those who wanted to deliver at home are older poorly educated women from the lowest income groups. These women do not use antenatal care facilities either. Substantial proportion of these women belong to high risk group but they do not avail of antenatal and intrapartum services; these women continue to have high morbidity rate and their low birth weight infants have high perinatal and neonatal mortality rates. Data from some studies suggested that the younger educated women having their 2nd or 3rd delivery formed substantial proportion of hospital deliveries. This group is a low risk group and their use of available hospital facility is unlikely to result in an reduction in perinatal and neonatal mortality rates. It is obvious that the segment of population which is in the utmost need of antenatal and intrapartum care seldom uses it. The low risk group, however, makes use of available facilities which they do not need. Thus there appears to be a maldistribution of available facilities.

This might also be one of the major factors responsible for the continued high neonatal perinatal and low birth weight rates in the country.

Problems of Communication and Transport

Unlike urban areas, transport and communication bottlenecks form one of the major constraints that come in the way of better utilisation of available health care services in rural areas. Women with obstructed labour, threatened rupture, malpresentations or eclampsia have to be trasported miles across the country in roads which are no more than tracks. The bullock-carts are often the sole mode of conveyance between the peripheral village and the nearest health facility. It is indeed surprising that many women succeed in reaching the hospital even in a shocked state. Lack of transport and communication facilities is one of the major factors that lead to under utilisation of available health care in rural areas. Communication between village and PHC is poor. It is not possible to ensure that even if PHC is informed arrangement for transport of obstetric patients during emergencies is possible because of lack of vehicles and inevitable time lapses inherent to this. Each village today docs have a panchayat which is vested with the responsibility of looking after welfare of village population. If arranging transport of women during emergencies either in pregnancy or in labour to an appropriate health facility is envisaged as a duty of the panchayat, it might be possible to reduce the delays in transportation.

Auxilliary Nursing Midwife

The auxilliary nursing midwife (ANM) is considered to be the most peripheral MCH worker. After her training (often in a city-based hospital training centre) she is posted in a village where she is not familiar with the population. She is expected to identify pregnant women but is not familiar with the village. Even after establishing a rapport she has to go

from door to door to survey the population to identify the pregnant women. Since she has to cover a population of 5,000 to 10,000 scattered between 5 to 15 villages, she has to spend a lot of time to achieve even the simple task of identifying the pregnant women. She is expected to provide antenatal care but at the moment she does not have any of the minimum equipment that is needed for screening pregnant woman. Her skills and knowledge which could be readily used for building an effective screening mechanism for high risk pregnant cases is thus under-utilised. She is expected to ensure that medication such as iron and folic acid tablets are taken regularly by pregnant women. However, she sees these women only once or twice in a month and, therefore, cannot ensure any regularity in medication. A lot of her time is spent in trying to motivate women to accept constraception. However, her advice is not readily heeded because she does not have a very good rapport with the population and she is not very effective in providing MCH care. Thus at the moment the ANM is a grossly over-worked woman who is spending most of her time in performing a job not tailored to her capabilities and is not well-equipped to carry it out. At the same time her skills and knowledge as a trained peripheral health worker are grossly unutilised. If the ANM is trained to check blood pressure, to measure fundal height and the abdominal girth and accurately estimate haemoglobin, she could be used very effectively to identify high risk pregnant women who need medical care. She could use her time to perform this useful function if she is freed of her job of identifying pregnant women and looking after deliveries in the village. If the community health volunteer (CHV) identifies and brings pregnant women to the ANM and if the traditional birth attendant(TBA) takes over the responsibility of looking after normal deliveries but informing the ANM as soon as complications arise, the ANM could adhere to her schedule of providing antenatal care. She can screen all pregnant women collected by the CHV, and can check the data of births and deaths collected by the CHV and can organise the referral of high risk patients to the appropriate health care facility or to PHC. If her role as provider of maternal and child health care is recognised by the villagers, she could be more successful in providing contraceptive care to the village population.

Community Health Volunteer (CHV)/ TBA

The CHV/TBA is considered to be a liaison person between the MCH care delivery system and the community. She is usually a barely literate person who has been given a short orientation training in some aspects of MCH care. Traditionally TBA's do not provide antenatal care; they provide only intrapartum care. She is a part time, underpaid person whose time is spent in trying to exercise her inadequate medical knowledge in early diagnosis of problems in delivery and their management. The fact that she is from the village and has an excellent rapport with the villagers, that she is available in the village all the 24 hours and knows what is happening there is very poorly utilised. Therefore, she does not serve as an effective link person between the community and the health personnel. The CHV can readily identify pregnant women from the community and bring them to the ANM; she would also form an effective link for referral of those patients to the appropriate health centre as and when needed. Since she resides in the village she can attempt to ensure that medicines

are regularly taken. She knows the entire village and therefore, can accurately record births and deaths. Thus, if her function as recorder of event in the village and her role as link person between community and health personnel is recognised and reinforced, she can function effectively.

Primary Health Centre (PHC)

The Primary Health Centre usually serves a population ranging from 30 to 40 thousand. All PHCs have an overcrowded outpatient departent. Most of the patients attending OPD suffer from minor ailments and do not need physician's skills in diagnosis and treatment. Thus the doctor's skills are under-utilised and this leads to professional frustration. The doctors's time is under-utilised because of lack of medical hierarchy. Since his time is spent in treating a large number of persons with minor ailments, he has no time to organise the functions of other health personnel or to supervise and check their functions. His position as the leader of the health team is not recognised and reinforced in daily activities of the PHC. Therefore, his capabilities as the leader of the health team remains unutilised and unrecognised.

The PHC doctor lacks facility for reaching the villages in case an emergency arises there and bring women over to the PHC or transfer these women to the appropriate health care facility readily. The PHC facilities are thus under-utilised by the high risk group residing in the peripheral villages. Even when he encounters a problem at the PHC; he lacks the appropriate referral system to send these women to referral hospitals. The absence of referral system is one of the most important factors contributing to the under-utilisation of all medical facilities and women not getting the type of care they need in an emergency so as to improve the chances of survival of her infant and betterment of her health status.

If the system can be modified so that the physician examines only cases which are referred to him by the CHV or ANM, he could spend more time in identifying all high risk pregnant women. He could also provide appropriate treatment for some cases (like anaemia in pregnancy) right in the PHC. He could refer women with major health problems which could not be adquately attended to at PHC to appropriate referral centres. Once he is freed from the burden of examination of people suffering from minor ailments, he has time to check ANM's records of births and deaths and MCH activities. He could monitor and follow their activities and take up corrective steps for identified defects. He could organise preventive and contraceptive service, in PHC so that the number of high risk cases decrease over years. He also needs time to spend on establishing viable communication and referral system. The fact that he is the head of the medical hierarchy in the PHC and has readily recognisable links with expert health care would enhance his prestige; the recognition that he is the leader of the health team at PHC might give him professional satisfaction.

Referral Hospital

There are large number of district hospitals in rural areas and corporation or teaching hospitals in any metropolitan cities. Their outpatient and in patient departments are heavily over-crowded. However, an analysis of the outpatient and inpatient statistics clearly indi-

cates that these facilities are grossly under-utilised. Most of women attending the outpatient department are low risk group who have come there for management of minor ailments. Women who had regular antenatal check up throughout pregnancy constitute less than 10 per cent of women attending any of these hospitals. Most of the time of the medical personnel is spent in screening a large number of low risk women; some high risk women get missed during outpatient clinics because of overcrowding. The outpatient facilities are thus under-utilised in spite of being overcrowded.

About 80 per cent of deliveries in these hospitals are unbooked; nearly three-fourth of these are from low risk group. It is obvious that the referral hospital is getting swamped with low risk cases who do not require the skilled personnel or the facilities available. But there is under utilisation of manpower capabilities and facilities available in the referral hospital for management of high risk cases.

Conclusion

To sum up, facilities will remain under utilised unless the women themselves realise the need for health care and ANM/CHV know of appropriate place and person whom they should refer cases. It would appear that lack of medical facilities, transport and communication problems and lack of an organised referral system are the main bottlenecks which result in under utilisation of available medical facilities at the rural levels. Lack of screening system for the high risk cases and the proper referral system results in under-utilisation of ANM and the medical officers' skill in the rural and urban areas and under-utilisation of available skills and facilities at the referral hospital. Health education, modification of existing health care delivery system with establishment of proper medical hierarchy and referral system might go a long way in reducing underutilisation of existing health care facilities.

It has often been pointed out that there are two major problems that come in the way of effective utilization of available personnel in delivering MCH services. The first problem is the lack of proper medical hierarchy with well definded duties and responsibilities for the various personnel involved in delivering the health care, and lack of first line supervision. The second is the absence of proper screening and referral facilities to identify at risk women and provide the with prompt and effective managment.

MCH care can be organised so that each person in health care system performs the job for which he is well suited. The CHV acts as a local recorder of events and liaison person between health facility and community. The ANM supervises her work, checks the records for correctness and accuracy, screens antenatal women and reports to the medical officer. The Medical Officer examines, in detail, the at risk group and prescribes proper management. He now has time to check the records maintained by CHV and ANM and evaluate the work done by both. He can organise and supervise preventive and promotive health measures. He could develop viable, functional referral systems from villages to PHC and PHC to district hospital. All the health functionaries may thus perform the role that they are best fitted to do and the community benefits because of effective functioning of the health care system. Incidentally, such a system itself forms a method of in-service training and refresher course for all prsonnel involved. Establishment of medical records and collection

of vital statistics have become a way of life. Periodical analyses of these data over serveral years would provide an in-built tool for evaluation of ongoing programmes.

This model of antenatal and intrapartum care visualises the reorganisation of the function of the existing health care infrastructure so that all pregnant women could be screened using simple appropriate parameters and categorised into various risk groups. It is expected that the selection of high risk women and referral to the appropriate level of health care delivery system for their care would result in significant reduction in low birth weight, perinatal mortality and neonatal mortality rates. Theoretically, at least, this appears to be an attractive model based on logic.

One is not sure if it is possible to reorganise the existing system on the lines indicated above. The benefits and risks of such reorganisation are yet to be determined. For this purpose, pilot projects need to be undertaken and these systems put into operation in one or two districts. The snags, as and when encountered, need to be tackled and the projects evaluated using the inbuilt recording and reporting system. Based on the concrete data obtained from such studies, steps could be taken to improve the delivery of MCH care at the district level.

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