



Child Mortality Determinants in three Backward Districts of Maharashtra

2003-2004

Nandurbar, Jalna and Yavatmal

Study report by BharatVaidyaka Sanstha

Child Mortality Determinants in 3 Backward Districts

Nandurbar, Yavatmal and Jalna

By

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On behalf of

Indira Gandhi Institute of Development Research

MUMBAI

January 2004

ABBREVIATIONS

AMA	Against Medical Advice	ELA	Expected Level of Achievement
ANC	Ante Natal Care	EOC/EmOC	Essential/Emergency Obstetric Care
ANM	Auxiliary Nurse Midwife	FGD	Focus Group Discussion
APH	Ante Partum haemorrhage	FHS	Foetal Heart Sounds
ARI	Acute Respiratory Infections	FS/IFA	Ferrous sulphate /Iron Folic Acid Fersolate (iron tablet)
ARP	Action Research Programme	FW	Family Welfare
ASV	Antisnake Venine	GOM	Govt of Maharashtra
AW	Anganwadi	Hb	Haemoglobin
AWW	Anganwadi Worker	HBNC	Home Based Neonatal care
BAMS	Bachelor for Ayurvedic Medicine and Surgery	HDI	Human Development Index
BCG	TB vaccine	HIVS	Health Information V Service
BDO	Block Development Officer	ICDS	Integrated Child Development Scheme
BMO	Block Medical Officer	ICMR	Indian Council of Medical Research
BPL	Below Poverty Line	ID	Institutional Delivery
BW	Birth Weight	IEC	Information, Education and Communications
CBR	Crude Birth Rate	IM	Intra Muscular (injection)
CDR	Crude Death Rate	IMR	Infant Mortality Rate
CEO	Chief Executive Officer (ZP)	IPD	In patient department
CH	Civil (district) hospital	IUD	Intra Uterine Device (CuT)
CHC	Community Health Centre	IV/IDI	Interview/ In depth Interview
CHD	Congenital Heart Disease	LBW	Low Birth Weight
CMR	Child mortality rate	LHV	Lady Health visitor
CNS	Central Nervous System	LSCS	Caesarean- operation
COD	Cause of Death	MCH	Maternal and Child Health
CSSM	Child Survival Safe Motherhood	MHSDP	Maharashtra Health System Development Project
CuT	Cooper T (IUD)	MIS	Management Information System
DDC	Disease detection camp	MMR	Maternal Mortality rate
DDK	Disposable (Dai) Delivery Kits	MO	Medical officer
DH	District Hospital	MOHFW	Ministry of Health and FW
DHO	District Health Officer	MTP	Medical termination of Pregnancy
DPT	Triple vaccine	MPW	Multi Purpose Worker
DSO	District Statistics officer	NFHS	National Family & Health Survey
DT	Diphtheria Tetanus vaccine	NGO	Non-Govt Organisation
DTT	District Training Team	NICU	Neonatal Intensive Care Unit
EGS	Employment Guarantee Scheme	NMR	Neonatal Mortality rate

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NSV	Non Scalpel Vasectomy	SB	Still Birth
OP	Oral Pills	SBR	Still Birth rate
OPD	Out patient Dept	SC	Subcenter Health
ORS	Oral Rehydration Solution	SCDR	Survey of Cause of deaths
PDS	Public Distribution System	SRS	Sample Registration System
PEM	Protein Energy Malnutrition	SSS	Salt Sugar Solution
PET	Pre-Eclamptic Toxaemia	TBA	Traditional Birth Attendant
PF	Plasmodium Falciparum (a malaria parasite)	TFR	Total Fertility Rate
PHC	Primary Health Centre	TL	Tubal ligation
PHN	Public Health Nurse	TLL	Tubal ligation laparoscopic
PHW	Pada Health Worker/volunteer	TM	Trimester
PIH	Pregnancy Induced Hypertension	TMP	Traditional Medical Practitioner
PMP	Private medical Practitioner	TRTI	Tribal Research and Training institute
PNC	Post Natal care	TSP	Tribal Sub Plan
PPH	Post Partum haemorrhage	TT	Tetanus Toxoid
PUO	Pyrexia (fever) of unknown origin	U5MR	Under 5 year mortality rate
PV	Plasmodium Vivax (a malaria parasite)	U6MR	Under 6 year mortality rate
RCH	Reproductive and Child Health	UNFPA	United Nations Population Fund
RH	Reproductive Health	ZP	Zilla Parishad

From The Research Team

The Maharashtra State Planning Board had published Human Development Report for Maharashtra in 2001 and this study was a follow up of HDI by Indira Gandhi Institute of Development Research Mumbai. Our team at BharatVaidyak Sanstha studied mainly the health aspects, esp. the factors from viewpoint of child mortality in three districts-Nandurbar, Yavatmal and Jalna. With limited resources at our disposal, we have been able to bring forth some important issues related to child mortality. Although there is no satisfactory registration of births and deaths, the team feels that child mortality and malnutrition is on the decline except in some pockets. Yet a lot that can be done remains to be done on the part of health department. At the same time, other departments of Govt need to several needful things that can be done if there is adequate political will to deliver. The team has made recommendations--short term, mid term and long term--, which are very much in the realm of possibilities. They call for just poling of resources and policies and a will to get things done.

As a team we have also gained immensely from the study, esp. on the background of the ongoing debate on child mortality facts and interventions. The team feels that the truth lies somewhere between overestimates of the SEARCH camp and the underestimates of the Govt data.

We are indebted to the State Planing board, IGIDR core group for providing support as well as stimulus for deeper inquiry. We are grateful to the Govt health authorities, Zilla Parishads, ICDS officers and staff including Anganwadi workers, Govt doctors and nurses working in difficult situations, the birth attendants, the families whom we interviewed on their woes and sufferings and countless others we met during the research. It is our duty to not only thank them all but also publish the findings in Marathi at a suitable date.

Most important, we feel that the suggestions we have made are feasible, and in fact some are in the stage of implementation already. There may be some criticism of Govt health dept and other dept. in this study. The purpose is not to

undermine the importance of their ongoing efforts or tarnish them, but to make change possible. We are confident that not one word in the recommendations is a dreamy or 'NGOtic' one; everything written here is feasible for the Govt, within the constraints operating. For some suggestions, the dept has to mend some policies and management styles and go beyond the districts that we are talking of. And it is to be remembered that the 3 districts chosen by IGIDR are meant to point at three different regions-North Maharashtra tribal belt, Vidarbha with tribal belt and Marathwada with backward caste populations. It is an attempt to overview Maharashtra and the recommendations should be read as such.

One of the members of the research team is now a member of the *Balmrityu Mulyamapan* committee set up by the State Govt in Jan 2004. We have, with permission IGIDR, kept the executive summary of this study before the committee in February 2003. We hope that these findings will be useful to the Committee in several ways. We will be greatly rewarded if some part of the suggestions is actually implemented and RCH services improved.

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22 February 2004

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EXECUTIVE SUMMARY

An array of factors--some antecedents and some determinants -- interplay to cause child deaths directly or indirectly. We can understand them as sectors--social sector, environment, health system etc. Each sector is amenable to different interventions and our main effort here is to see what can be done through the health system to improve child survival. This does not mean that other sectors are less important, in fact they can be more important and economical for interventions, but there are separate reports on these sectors. It is needless to stress that the sectors overlap and intermingle and the accompanying figure only serves to bring clarity in approach.

Our team of 3 researchers studied Child mortality and its determinants in three low HDI districts of Maharashtra--Nandurbar, Yavatmal, and Jalna. The study used secondary data, mainly MIS report and qualitative methods for direct inquiry. The study was undertaken in Sept 2003. Interviews with district health staff, PHC MOs, LHV, ANM, TBAs, AWWs, PMPs, families, NGOs and RH doctors were conducted with help of semi-structured questionnaires.

Our 3 district study showed that

1. Child mortality--IMR and U5MR-- has declined in all districts between 1991 and 2003 and is about 40-55 from DSO data. In tribal blocks of Nandurbar, it is higher than this figure.
2. There are no alternative sources of rigorous data for child mortality in the 3 districts; but some evidences suggest that there is some underestimation both due to recording methods and because health care staff did not report (deliberately?). However all staff-interviews say that recording has improved in the last two years and is near-complete.
3. NMR is a major component (about half) of IMR, which in turn is a major component of U5 child mortality.
4. The listed causes of neonatal deaths mainly include lbw, Prematurity, asphyxia, sepsis and ARI. The cause-of-death-allocation is not a very systematic exercise as no differentiation is made between underlying (like LBW) and immediate (like ARI) cause.
5. Malnutrition -gr. 2--remains high despite ICDS but grade 3 and 4 together are less than 1 percent--which needs some explanation or it is utterly praiseworthy if true.
6. Home birthing is the norm as expected and risk detection, primary maternal and childcare factors remain weak in absence of village based health workers.
7. Referral services are underdeveloped at block level (and even at district level in Nandurbar).
8. ICDS services consist of these factors: weight monitoring, feeding, pre-primary education and medical care. Some of these components are weak except weight monitoring, and the ICDS

services are struggling with quality of care issues, though in Jalna its coverage is also small and rather recent.

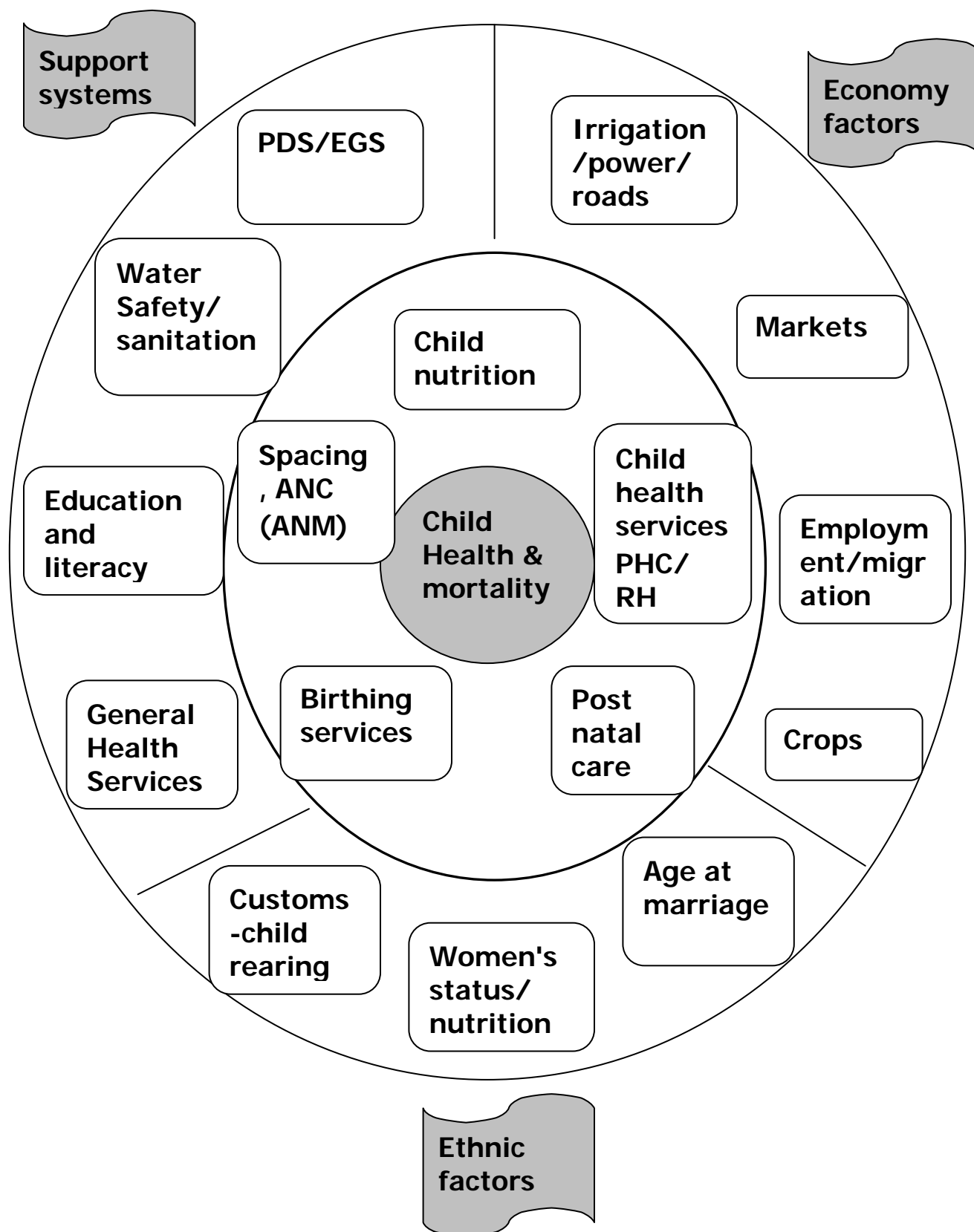
Among health services interventions, we recommend

1. Revamping of ICDS services, to improve supplementary nutrition, weighing and weight records, coverage of needy but uncovered groups and locations.
2. Conceptual and operational improvements in TBA support (which RCH 2 is reportedly considering),
3. Restructure the Subcenter-ANM services to make them more dependable for obstetric services,
4. Improve the RH to take care of referrals--right combination of specialists and management.
5. Birth, stillbirth and death registration improvements attending esp. to data management from block level to HIVS and RCH at Pune --hastening data processing to get yearly reports in time.
6. HBNC (Home based neonatal care) and warm box programmes are suitable for child survival but some operational limitations have to be removed before they can be fully used:
 - HBNC is hamstrung from lack of primary health workers at the village level (except in padas).
 - The Warm box referral suffers from RH handicaps. Where to send the baby?
7. UNICEF is exploring better coverage of Vitamin A doses esp. addressing the steep decline after the second dose with DPT-B. This can help reduce 1-5 child mortality. Early findings are encouraging. This experiment can be considered for state-wide implementation.
8. Some other biomedical interventions need to be studied for the situation (for instance salt application on cord or squatting birth).
9. Training of Private doctors and traditional healers is one area for effort--the right protocols and flexible form of training will go a long way as 70-80% people seek care through them rather than Govt facilities.
10. It is recommended that the antecedent factors like poverty and unemployment get attention as important contributors, and hence the other departments of GOM should also work properly. This is esp. evident in Nandurbar block. In the context of child deaths, it will be better to make a matrix of responsibility of each dept rather than make it into inter-departmental blame-game.

However, in health sector the important thing is health care system improvement more than narrow vertical intervention. It is notable that health budget is declining by the year and can not support high intentions on mortality rates. It is also notable that GOM-GOI are unwilling to sincerely support TBAs despite the fact that 60-80% births take place at home. Village level

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health workers have vanished in nineties except in the attenuated version of pada health workers (6-8 month a year). These limitations will not take childcare initiatives very far.



Child Mortality factors: A schematic approach

INTRODUCTION

Human development measurement in Maharashtra started the 2001 Report by GOM. HDI itself stands on 3 indicators-literacy, IMR and per capita income. These are interdependent to some extent but at least the first two are somewhat amenable to direct interventions--the welfare action of the state.

India ranks 54th in the world on the measurement of U5MR, with an U5MR of 93 and IMR 67 in 2001 (UNICEF, 2001). More recent estimates put Maharashtra U5MR at 58.1 and IMR 43.7 (NFHS, 1999). Compared to Southern states like TN and AP that have comparable social-economic profile, this is a higher mortality.

Therefore, although Maharashtra is said to be one of the progressive states in India, it would be realistic to say that it is a middle order state for many parameters including for health. The more important thing to note is that the statistics needs to be disaggregated for urban and rural areas and the big gap is then visible. Sans Mumbai, Thane, Pune, Nagpur, and some other cities--the 59% population of the state--suffers several disadvantages in many socio-economic and developmental matters. The HDI Maharashtra depicts the underdevelopment district-wise.

The state has shown declining IMR and from 58 in 1991, it is 43.7 in 1999 (DGHS, 2002). The IMR from NFHS2 (NFHS, 1998) is 33.0 & 43.7 (4-year recall period) respectively for urban and rural populations. From the 1991 data (HDR, 2002) Nandurbar, Yavatmal and Jalna are high IMR districts from 3 different regions of Maharashtra-North Maharashtra tribal region, Marathwada and Vidarbha. All the three districts have poor communities, tribal in Nandurbar and Yavatmal and SC in Jalna. Nandurbar has been making news for several years due to child deaths. Jalna and Yavatmal are not in public gaze for this reason. This report is the result of brief study by our team in the 3 districts.

CHILD MORTALITY FACTORS: A SCHEMATIC APPROACH

Child mortality/survival has a complex web of determinants. This is why IMR U5MR are social indicators more than health indicators. We have shown the web in a schematic diagram on p 12, which is arranged in two circles, outer (antecedents) and inner (determinants).

The outer circle: antecedents

The first sector is the *Economy factors*, which includes infrastructure (roads, power, irrigation), markets, employment, migration, crops etc. In a tribal economy like Nandurbar, all these factors become very critical and override health factors. For development of services also these factors are primary factors. For instance doctors will not like to go in such areas where these factors are underdeveloped. Transport of patients or movement of health staff will become

difficult with bad roads. Migration will continue if local employment is lacking. All these factors -- the hard factors of development--are too obvious to need elaboration. In administrative context these factors fall in GOI and GOM domains--industry and agricultural policies, forest, irrigation, road building, employment generation and wages, power sector etc.

The second set is soft factors --ethnic factors that can be influenced by economy or can be independent. We can call this is the soft *underbelly* of development. They result from long years of practice but can change from generation to generation slow or fast. These are also customs or 'attitude' factors. Age at marriage, women's status, child rearing factors are just three factors we have listed her, but there can be more factors in this category. This is how some non-health inputs also can influence health and many NGO efforts insist on these 'soft' attitude factors apart from hard economy factors. IEC and BCC operate through this plane. This set of factors is often neglected by macro systems like Govt.

The third set is of support systems that Govt or society creates for social development. These include general health services, education and literacy efforts, water supply and sanitation facilities, special programmes like PDS or EGS that help tide over difficult times and scarcity. How well we run these support systems is crucial in marginalized communities more than developed communities. Many of them are dependent on the first set of economy factors. In administrative context they are largely in the ZP arena and the tribal development dept (TDP) in tribal areas. (ZP also operates in the area of minor irrigation, village roads, agricultural assistance etc).

The inner circle: direct determinants of child survival

The inner factors are specific programmes and services affecting child survival--RCH and ICDS services. It is possible to affect child mortality and morbidity directly through these factors at least to some extent if not fully. Of course running these services and programmes can and does to some extent depend upon the outer circle factors. It is therefore imperative to explore alternative pathways of creating or maintaining such programmes despite the first circle constraints.

We have attempted this study in the light of this schematic matrix of factors.

CAUSES OF INFANT DEATHS AND INTERVENTIONS: AN OVERVIEW

We are also placing here an overview of evidence based learning on child survival inputs (mainly in the inner circle of the schematic given above). We hope that this will provide clues to the study areas we have covered although exploring some factors was beyond this study. In this table, we have presented specific interventions, their feasibility and the evidence of effectively or otherwise. Looking at the last two columns, one can surmise whether a specific intervention is a) adequately proven to be effective and b) feasible in the situation of developing countries. For instance, the Early breast feeding is both feasible and effective as a child survival intervention,

while septicaemia management is effective but difficult in the situation. We hope that this overview will help the reader with a perspective on interventions that are suggested by various sources. However this is not the last word since new options and approaches are continually explored.

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1. CHILD SURVIVAL: SUMMARY OF PROBLEMS AND INTERVENTIONS

Period	Services	By whom	specifics	Evidence	Feasible ?
0-7 days Prematurity / LBW	ANC, NC, PNC, AW	Mother, TBA, AWW, ANM	Kangaroo Care	L	F
			Warm Box	L	F
			Early Breast feeding	A	F
			referral for neonatal septicaemia	A	D
Neonatal Sepsis	ANC/ NC/ PNC	Mother, TBA, AWW, ANM	Clean childbirth	A	F
(ARI, convulsion, septicaemia)			mucus suction	A	F
			mouth cleaning	A	F
			No PV	L	F
			referral	A	D
			IMCI protocol	A	F
Asphyxia	NC/PNC	TBA, AWW, ANM	Ambu bag	A	F
			Mouth to mouth respiration	A	F
			mucus suction	A	F
			mouth cleaning	A	F
7-28 DAYS Septicaemia	NC/ PNC/ FRU	TBA, ANM, AWW, Mother PMP	referral	A	D
			Inj. Gentamycin at PHC	A	F
Diarrhoea	PNC/NBC , Water, Sanitation	Mother, AWW, ANM, VHW	exclusive breastfeeding	A	F
			No water to the infant	A	F
			No use of milk bottle	A	F
			Chlorination,	A	F
			ORS	A	F
28 DAYS - 1 YEAR ARI, Pneumonia	FCC, PNC	Mother, ANM, AWW, PMP	Early diagnosis,	A	f
			Use of co-trimoxazole by VHW/ AWW/ANM	A	F
			IMCI protocol	A	F
convulsions, Abd. distension, Appendicitis	FCC, FRU	AWW, ANM, VHW, PMP	Early detection referral	A	D
Accident, bites	FCC, FRU	AWW, ANM, VHW, PMP	Early detection and referral	L	F
			First Aid	L	F
			Availability ASV at the PHC/FRU	A	F

A= Adequate Evidence L: Low Evidence

F: Feasible Implementation D: Difficult Implementation

DISTRICT PROFILES

2. A) FACT-SHEET FROM HDI 2001 (FROM CENSUS 1991) AND RRHS- (1998-99)

Indicator	Nandurbar*	Yavatmal	Jalna	Maharashtra
<i>Demography & quality of life</i>				
Population (2001)	1,309,135	2,460,482	1,612,357	96,752,247
No. of blocks	6	14	8	
villages	936		970	
padas	1155			
STs	66%			
Type of SCs	Bhils and Pavras	Gond, Pradhan, Kolam		
HDI				
HD Rank				
Female per 1000 male		942	952	
Safe Source of drinking water (tap + borewell)	84	88	74	
Literacy: M	66	84.5	79.2	86
F	45.5	63.0	49.2	67.5
Literacy married women 15 -45 age	39	49	34	
Crude birth rate	27.6	18.9	21.4	21.4
IMR HDI (1991) NFHS1	73	124	76	74
IMR (DSO 2002)	53	36	35	48
U5MR	95	143	94	91
<i>Health of women</i>				
Age of marriage <18 (RRHS)	40	27	56	29
Age of marriage of currently married women<18 (RRHS)	71	68	76	
TFR (RRHS)	4.22	3.86	4.47	3.72
Complete ANC coverage (1999)	33.7	53.1	40.2	54.5
ANC coverage (RRHS, 1999)*	22.6	23.8	24.8	38,3
First ANC visit in 1 st TM	30	36	27	
NO ANC visits	30	8	23	
ANMs visiting Mothers	34.2	47.4	17.2	28.8
Safe Birth (RRHS, 1999)	38.6	41.3	34.6	61.2
Institutional births (RRHS)	31	37	28	58.5
Institutional births (HDI)	44.8	34.0	59.6	57
% Pvt. Inst. births out of total I births (RRHS)	45	34	60	
Break up of Home births Doctor/ANM/TR TBA/UTBA	6/5/30/58	3/3/38/55	5/4/9/82	
PNC visit within 2 weeks	26	37	20	
Source of treatment for PNC MCH problems: Pvt. doctor/ ANM	69/3	64/6	75/8	

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<i>Family Welfare</i>				
Current Contra. User	28	59	51	60
Users of spacing	4.3	5.5	6	8

<i>Child Health</i>				
Neonatal care BW taken within two days	33	37	18	
LBW < 2500 gms	7%	42%	3%	
Malnutrition(Wt for age) 2 SD	-	43.8	32.3	40.6
3 SD	-	13.0	14.8	15.9
(Ht for Age) 2 SD	-	56.6	59.1	54.6
3 SD	-	33.5	32.7	31.7
Complete Immunisation.	69	74	78	80
Colostrum fed babies	32	34	17.5	-
Health facilities/services				
Home Visits by ANM	90	95	96	
satisfaction of home visits	90	97	91	
<i>Public Health Facilities</i>				
District Hospital	1	1	1	
Rural Hospital	10+	6	7	
Women's Hospital	1	1	1	
PHCs	49	61	38	
PHUs		58		
Others#		25		
SCs	260	260	171	
Pada health workers	1268	1279		
Anganwadis	1005*	2033		
BDCS Block Co-ordinators	15	-		
Trained TBAs		980		
DTU		1		
IEC bureau		1		
Hospital per population	14809	26303	25152	
Dispensary per population	12247	19492	477897?	9972
Bed population ratio (1:n)	1385	1011	1086	642
Nandurbar figures are mostly not available because it was formed after 1991 census. Therefore the available figures are of Dhule district. + includes cottage Hospital. * includes mini anganwadis				

3. B) DISTRICT FACT SHEET ABOUT ICDS FROM HDI 2001

Indicator	Nandurbar		Yavatmal		Jalna		Maharashtra	
	No	%	No	%	No	%	No	%
Anganwadi (2001)	1004		2069		674		44985	
6m-1 yr.	18611		27622		11971		583561	
	16844	91	20340	74	10646	89	434143	74
	15512	83	17637	64	9695	81	381421	65
eligible per AW	19		13		18		13	
1-3 yr.	56092		84207		37991		1789458	
	51210	91	64594	77	32147	85	1232126	69
	47652	85	60934	72	17433	46	1033356	58
eligible per AW	56		41		56		40	
3-6 yr.	72843		114419		52162		2519275	
	63374	87	89272	78	46215	89	2085307	83
	58798	81	82518		22716		1710555	
per AW	73		55		77		56	
No. of 6m-6y	147546		226248		102124		4892294	
	131428	89	174206	77	89008	87	3751576	77
Eligible per AW?	121962	83	161089	71	49844	49	3125332	64
No. of 6m-6y/AW Eligible	147		109	0	152	0	109	
Benefited	121		78		74		69	
Preg. women eligible	13281		19390		10379		424444	
Registered	11780	89	14735	76	7258	70	301708	71
Benefited	11020	83	13564	70	3678	35	238158	56
Breast feeding mothers eligible	14872		20702		9646		451078	
Registered	13175	89	15309	74	7192	75	319811	71
Benefited	11741	79	14181	69	3414	35	250823	56

- In Nandurbar district, the number of eligible children per Anganwadi is next highest among the 3 districts. (Are there any norms?). Despite this adverse situation, the services are utilised by more beneficiaries. However, such a high load can reduce the quality of services.
- Jalna district has the highest number of eligible children per Anganwadi but the number of beneficiaries is lowest, probably because there are no feeding services established as yet.
- ANC service (complete ANC coverage 1999) in Nandurbar and Jalna are weak - while Yavatmal district is just a notch lower than the Maharashtra figure.
- The proportion of colostrum -fed babies is small in all three districts, but smaller still in Jalna.

STUDY OBJECTIVES

TO STUDY

1. Proximate factors leading to Neonatal mortality
2. Proximate factors leading to infant mortality
3. Proximate factors leading to child mortality

TO SUGGEST

Health system solutions that can improve the situation in near future.

METHODS AND MATERIAL

The study employs a rapid assessment of various factors involved through secondary data and some direct qualitative methods like interviews. Three researchers with close understanding of the rural health care system and problems toured the select districts. The field-study (about 7-10 days each) includes:

1. District and block/PHC-wise MIS data of health dept (See annexure for document lists)
2. Interviews with medical officers line staff: DHO, MO, DTT, PHN, NM, ANM, male MPW, AWW, Pada health worker, TBAs and also private doctors. It was not possible to include a larger sample. We selected two lines: A PHC from a good block and PHC from difficult block, based on District level officers' assessment of child mortality.
3. Study of 'cluster of factors' includes following factors:
 - ❖ Quality of Life of Women: age of marriage.
 - ❖ ANM services for women in Reproductive age group: Spacing of births, ANC
 - ❖ Birth services: TBAs, ANMs, hospital births. Numbers and quality of services. EOC (emergency Obstetric Care)
 - ❖ Post-Natal Care services: ANMs, TBAs, AWWs. Matrutva Anudaan Yojna, breast feeding
 - ❖ Child nutrition: 0-1, 1-6 years. ICDS data
 - ❖ Childhood illnesses and services : OPD data,

The study did not employ any quantitative surveys.

BLOCKS AND PHCs SELECTED

3 D study on determinants of child mortality

We employed a four-stage convenience sampling--block--PHC--SC--Village and studied facilities and interviewed personnel at all these levels.

4. SELECTION OF BLOCKS AND VILLAGES

District	Blocks	Hospital	PHCs	SC	Village
Nandurbar	Shahada @	Mhasavad	Mandana	Lonkheda	Temli
	Akkalkuwa#	Akkalkuwa	Horafali	Khatwani *	Khatwani, Kundi
Yavatmal	Yavatmal @	CH	Savargad	Lasina	Lasina Tekdi, Murzadi(S)
	Ghatanji #	Ghatanji	Rampur	-	Rampur
	Ralegon		Varadh	Savarkheda	Khemkund, Loni
Jalana	Jafrabad#	Tembhurni	Varud	Bharaj	Bharaj B & K
	Bhokardan@	Bhokardan	Jalgaon sapkal	Surnagali	Surnagali
@ Good block, # means difficult block					

- This study was not meant to be reassessment of actual child mortality figures/statistics of the three districts, for which several direct and indirect sources are available (like NFHS2 or Jeevandar survey, service data in health and ICDS etc). So this is not a fact-finding survey for child deaths. It was however meant to get a closer understanding of proximate factors--services in the context of child deaths.
- We have depended upon service data like MIS, which is as good as the services network. In certain areas, like Akkalkuwa, the services are scant as compared to plains, and so data gaps do exist. Like in Somaval, 3 out of 9 child deaths in August were not reported, which is about 33% underreporting.
- The programmes are not equal in all three districts. Nandurbar has a dense ICDS network as compared to Yavatmal and Jalna. UNFPA and UNICEF have special inputs in Nandurbar and therefore the input side is also not on the same par.
- Seasonal migration to other districts and out of state make a variable factor, more intense in Nandurbar; causing absence of at-risk population for a good half year annually. This changes service statistics in some zones.
- In Nandurbar the District MIS for hospital data was not available at the time of study and the RH Akkalkuwa data is also not available.
- In Yavatmal the District MIS hospital data was not available and COD from hospital data was not available.

OBSERVATIONS AND COMMENTS

Before we actually look at birth death figures, it will be useful to see how these events are recorded and how the data is compiled. This will help us get a perspective of the figures reported and the non visible component of the vital registration

RECORDING OF BIRTHS, STILLBIRTHS AND DEATHS

It is necessary to understand the process of recording and reporting of these three events from homes to State bureau of health information.

- When a birth occurs in urban areas, generally it occurs in some hospital and the hospital reports it to the Municipal office, which issues a birth certificate, which is required for school entry. So also is the case with death and the death certificate is necessary for several purposes like inheritance, bank acct closure etc and hence is generally collected by relatives. Stillbirths are also reported by hospitals fairly faithfully.
- However in rural areas, many births happen at homes and only some at hospitals (institutions). The ANM and AWW are routinely collecting the information from families and they know the expectant mothers in their area. The ANMs have basic registers to keep (R-15 etc) and then they take the birth/stillbirth entry in their Birth & Death register. Any death is also recorded in their B & D register. The health staff takes resident as well as *out-gone* births since they have to complete the R-15 entries and later give services to mothers and babies returning after the confinement. Therefore the births in the health register systematically exceed those in the Village Panchayat office.
- The Grampanchayat or village Panchayat (VP) officer-Gramsevak is the legal registrar of vital events. The VP has three separate books for entry of birth, deaths and stillbirths. The ANM/AWW meet the Gramsevak each month and events are updated in the three books.
- In the last two years the GOM has instituted special committee in each revenue village for strengthening the registration of events. This committee has these members: Gramsevak, Sarpanch, Woman members, Mahila mandal head, AWW and ANM as members. AWW is the secretary of the committee and she is supposed keep the minutes of the meeting each month. This is a way of triangulating the information on vital events. It is another matter that the meetings do not take place. (We checked this information in one of the villages in Nasik circle).
- The village register is often maintained by the office-boy (shipai) and his entries may or may not be perfect.
- The three books in the Village Panchayat have a perforated duplicate format. Information is more detailed on the removable side of the report. After entries and signature by gramsevak,

each month the forms are sent to the Panchayat samiti (Block Development Office). Each category (birth, death, and stillbirth) has a separate abstract. The counterfoils in the book remain with the VP as record.

- At the block level, the statistical officer or a supervisor in the BMO office manages this section. Each month, at the Gramsevak meeting (generally in the first week) forms with the extract are submitted to the BDO. The BMO makes block level extracts of the reports. These forms with village-wise extract are to be sent to the Pune HIVS office (Health Information and Vital Statistics bureau) each month before 10th. The block level extract from BMO also goes to the DHO (who is the district registrar) each month and the DSO in the DHO office compiles the info for the district and dispatches it to Pune RCH bureau, with a copy to the divisional Deputy Director of Health services.
- At The RCH bureau, necessary compilation of the state level statistics is done each month. Since the HIVS office can not process the data quickly, they also take a copy of the state extract from the RCH bureau.
- When we checked in one of the Nasik circle villages and block level, at the village level all events registers were found complete but entries in the forms were not good enough. For instance place of birth was not written and the weight of the baby was entered as 5 pounds, which means it was not reported properly. The entries are often made by the peon of the VP.
- When we checked at block level (in some other block), 65 out of 158 villages never gave their reports to the BMO. Those who gave forms were not regular. Some villages give their reports late, often all at once in the year. One major village (15000 pop) never gave the extracts in three years.
- Thus only 50-60% data may be flowing to the HIVS office at Pune. The tragedy is that the Pune HIVS office has not been able to process data compilation beyond 2000-2001 so far, a lag of 2-3 years. The forms are individually seen and data entered on computers. Thus there is no information at the state level on vital events that can be called up-to-date. The information is far from complete. There is no quality check in this situation and this further allows the Village Panchayat to delay and dither. the BDO must be reminded about this chaos.
- If computerisation has reached blocks and BDOs, (Is this true at all blocks? Why not complete the information processing there only and send the electronic data to DHO and RCH bureau and HIVS office?)
- This implies that whatever improvements are happening with the village level AWWs and ANMs in vital registration, the HIVS can tell about them only after 2-3 years, that too for some parts. This is poor work indeed in the days of IT.

3 D study on determinants of child mortality

- In the absence of HIVS information, the DSO surveys are the sole source of information we can have on vital events in the districts.

THE THREE CIRCLE APPROACH

As discussed in the introductory section, we have approached the complexity of the child mortality study in the light of a three- circles diagram. Broadly the outer circle represents the antecedents, the middle circle the determinants and the inner grey circle of mortality issues. There are inevitable overlaps between these circles but it helps for comprehension. We start with the core issue or the innermost circle-- child mortality in the three districts.

THE INNER CIRCLE: CHILD MORTALITY

Since this study is about child mortality, we have chosen to start with child mortality observations in the three districts. A quantitative estimation exercise of child mortality is not in the scope of this study, so we have relied on data available from various sources and qualitative pointers.

NEONATAL AND INFANT MORTALITY

It is to be noted that while reporting vital rates, GOM goes by either NFHS, DSO or SRS data and not the service data from MIS. It will be unjust to say that GOM goes by service data, which has gaps just as there are gaps in the services.

Mortality in children is reported as different rates: Early neonatal (0-7 days), neonatal (0-28 days), infant (0-1 yr.), Child mortality (1-5 years), U5 (0-5 years) and U6 (0-6 years). Neonatal, infant and Child mortality (CMR) are important. All these rates are calculated for 1000 live births.

5. NMR AND IMR STATISTICS FROM MIS 2003 & DSO 2003

Indicator	N'bar	Y'mal	Jalna	Mah	Source
Birth and child deaths data					
Live births	29320	34772	33213	510294	MIS 2002-3
Infant deaths	1388	708	643	21502	MIS 2002-3
IMR calculated from MIS	47.3	20.1	19.4	42.1	MIS 2003
IMR from DSO	52.5	38	35	47	DSO: 2002-3
Neonatal Mortality rate	28	27.9	14	32	*DSO: 2002-3
Still Birth rate	15	15	5.3		DSO: 2002-3
Child Mortality rate(1-5)	13.5	4.2		24.2	*DSO: 2002-3
*Mah fig from NFHS2,					

From the DSO data, IMR is highest in Nandurbar and the rest two are almost on par, yet the two notch a lower figure than the state. This is indicative that DSO figures may not be reliable at least for the two districts. These issues are further discussed in child mortality

separately. It is sufficient to say here that NMR makes a major portion of IMR in all the three districts, and so is the case for the state

This three-district study in 2003 has shown a lot of positive variance from the 1991 census scenario, and excepting the two hilly tribal blocks in Nandurbar, child mortality has reduced. The sources of data are still samples but some information about the whole district is available in the MIS of each district. ICDS has a variable presence in the three districts and so its statistics can not speak for entire districts. With these riders in mind, the data needs to be looked at with some caution.

Neonatal mortality, esp. the first week mortality is the major portion of infant mortality and the following Yavatmal picture (March 2002) is representative.

6. AGEWISE INFANT MORTALITY FROM YAVATMAL: DSO DATA

Age of the infant	07 days	8-28 days	29 d --1 year	Total
mortality as % of IMR	51	24	25	100

NMR is lowest in Jalna (14) and about same (28) in other two districts. These figures are from DSO data. NMR claims about half of IMR in Nandurbar, two third of Yavatmal IMR and less than a third of Jalna IMR. Generally more than half of IMR is due to NMR. It is possible that either NMR data and/or 4 week-12 m mortality data is incomplete. Some underreporting of child deaths is recorded in Nandurbar and possible due to omissions in the other districts. In any case, actual child mortality may be higher than is calculated from the health service data.

In a telephonic talk with Additional DHS RCH Pune, it was shared that in tribal areas only about 35% infant deaths are reported by the health system, mainly due to paucity of staff and difficult access.

Jalna: Birth and death study in Tirthpuri

In December 2002, a two day special survey was undertaken by the DHO Jalna in PHC Tirthpuri for maternal and child deaths in Jalna in the year. The surveyed population was 62972 (12654 households). The findings are:

- Number of births: 1506
- U5 children: 7872
- Stillbirths: 18
- Neonatal deaths: 53
- 1-11 month deaths: 12
- Infant deaths total: 65
- 1-5yr deaths: 7

3 D study on determinants of child mortality

- maternal deaths: 3
- IMR: 43
- MMR: 2

This Jalna study is important as it restores the credibility of IMR statistics by DSO. It is noteworthy that this study has an IMR of 43.

Stories from three districts on Neonatal and infant deaths

Apart from statistics on infant/neonatal deaths, more light is thrown by stories from various districts. The inability of the family to access medical care, lack of accessible medical care (even neglect at times) emerge as the main factors behind infant deaths.

7. NANDURBAR: INFANT DEATHS AT SOMAVAL SETTLEMENT (COURTSEY LOKSAMNVAYA TEAM)

No.	Name	m/f	Age	Weight	Cause of death	Duration of illness	Treatment
1	Arvind Ranya Vasane	M	2M	3Kg	Boil-16 days	16	No doctor at PHC
2	Sunita Saysing Padvi	F	1M		?	/	
3	Pintu Khayalla Vasane	M	1M	3Kg	Fever, breathless	2	No doctor at PHC
4	Sarita Bija Vasane	F	13 days		fever-infection cord	13 d	No doctor at PHC
5	Sachin Ginthya Vasane	M	6M	4.4Kg	Im, vomiting, fever	7d	No doctor at PHC
6	Dongibai Bayla Vasane	F	1 day		premature	16 hrs	
7	Pintya Umarya	M	1Y	6.5	Unknown cause	?	?
8	Avanti Mogya Vasane	F	4Y/4M	6Kg	fever	2 d	No doctor at PHC
9	Anita Khilya Vasane	F	2Y/9M	6Kg	Diarrhoea, vomiting	5	No doctor at PHC
10	Kavita Maglya Padal	F	3Y	8.1	Fever cough-ARI?	?	No doctor at PHC
11	Lala Umarya	M	2Y	8.6	Fever cough-ARI?	6 d	No doctor at PHC
12	Navi Bharya Padavi	F	3Y/9M	10.6	Fever cough-ARI?	6 d	No doctor at PHC

Somaval is a big settlement (N= 2500) of dam affected people. Some 12 U5 child deaths have been reported by the NGO while health dept has allegedly recognised only 9 for the same period. Seven of these are infant deaths

About 9 of these children had some medical problem which was treatable. However the PHC MO was not available in this month. The original Somaval village has another PHC 4 km away and has a MO who could have been given additional charge. The Settlement has a PHC but the doctor is not available for over one month now.

The AW here has an incredible number of 230 children. This is impossible for management by one AWW. The NGO Loksamanvaya further states that in August 2003 alone, the four settlements (pop about 9000) experienced deaths of 19 infants; while the Govt statistics for the entire Taloda block (103 villages and population in 2001 about 128000) accounts for 67 deaths. If just four settlements (9000 pop) on plain areas experience 19 infant deaths, how can 103 villages with 128000 population have just 67 villages--ask the Loksamnvaya activists?

Yavatmal: Story of an infant death: (Names changed)

Laxman of Savarkheda, SC Savarkheda, PHC Waradh, a 6-month-old child died on 5/8/03. Cause: pneumonia (Dabba as per his mother) He had a 3 year old sister also.

The father is 29 year old and mother may be 24. She does not know. She looks 20. They were married 4 years back. She must have been 16 year old. They belong to Kolam tribe. Both are landless and wage labourers. The father is educated till 8th std. Laxman was born at home, delivered by their neighbour - an untrained dai. There was no ANC or PNC visit. No birth weight was measured. According to her, he was (bareek) thin. (The SC register shows that she was registered in the 24th week. II visit was in 28th and III in 32nd week. She was given IFA/TT. But details of her examination are missing in R 15.)

She started breast feeding on the 3rd day. Till then, the baby-Laxman was having sugar water. The breast milk was not enough so Bhau had bought milk powder - the creamer available in the small shop in front of his house. He gave 1 tsf of powder in 1 glass of water twice a day. His friend had told him to do so. Nothing else was given. Their normal diet is *Bhakari* and Tomato *Chatni*.

At 3 months Laxman had fever, cough and breathlessness (*dabba*) when he was 3 month old. They went to her parent's place. They consulted a well-known private doctor practising at a market town just across the hill. He did not give injection. But Laxman got well.

He had again the same problem in this August . They visited the doctor, who gave an injection. He was brought home. He died the same evening. The PHC is about 8 km away with no direct road and therefore no direct bus connection. There is no guarantee that the MO would be present. So private doctor was preferred. According to the father, the SC is locked for the past 6 years. The sister stays at Yavatmal.

Jalna: Neonatal death at Surangali

20 years Kushivarta Sampat Varpe is a resident of Village Surangali. She has 3 daughters. One daughter expired at age of 3 weeks. The ANC check up was limited to 2 TT injections. Abdominal examination, Hb estimation and Urine examination were not performed. ANC card was not given. She had full term home delivery. TBA conducted the delivery. The cord was cut by knife (probably unsterile) Baby weight not recorded. The baby was a girl. Breast-feeding was started on third day. At the age of 3 weeks the baby had cough, difficulty in breathing with indrawing of chest. The child did not receive any medical treatment. Eventually the baby died after 3 days.

Newspaper notes on tribal child deaths (Nandurbar)

There have been several newspaper reports in local and Mumbai press about child deaths in Nandurbar district. This is especially in the period of monsoons. One such report in Loksatta reported by Mr. Datta Wagh from Shahada on 6th October 2003 is a good summary of facts and figures. This report has the following points.

- The problem of child malnutrition and deaths is burning since 1987 but the impact is always limited and momentary. This tragedy continues no matter which party rules in Mumbai. Why should all the efforts go in vain?
- The resettlement villages of Narmada dam oustees have experienced these problems intensively over the years. The argument that malnutrition and child deaths happen because the padas are scattered in hills (and so need to be resettled on plains to avoid the recurring tragedy) thus falls flat. These settlements fulfill the first part of this *solution* but the expected result is not

there. In fact these settlements may have had more deaths than elsewhere. The logic in bigger settlements was that services would be rendered more effectively. Has it happened? It is sad that there are so many deaths in these resettlements.

- Malnutrition and deaths question the efficacy of various Govt. Departments -- revenue, health, ZP, ICDS, Tribal development and they keep on pushing the buck to each other and regularly.
- The political leaders from tribal areas make statements that they themselves may also fail to understand. (Two MLAs are quoted by the paper.) MLA Shri Padavi opines *that even if we pour 200 crores into this area the problem will not go away. What is needed is public awareness in every family.* But--the journalist further asks-- who will do this awareness programme? Media, Govt., social workers or learned and well-to-do tribal people? The second MLA says *malnutrition will stay as long as there are tribals.* What does this mean, so asks the journalist.
- The CEO ZP Nandurbar has a queer statement to make -- *malnutrition affected numbers grow because there is grant-in-aid coming.* Does Mr CEO imply that tribal people are living on just grant from Govt.--asks the newspaper.
- Loksamnvaya activists have raised issue of Somaval deaths to the press and political leaders. An NGO linked with NBA, said that the rural development minister Mr R.R. Patil and Mr. Sharad Pawar (NCP president) do have good understanding of Tribal problems, but even then there is not much impact.
- Dr. Kantilal Tatiya of BJP has done a lot of work for exposing these problems for several years and he takes pains to visit the padas and find the truth. He is detested by other parties and Govt. departments.
- That the Navasanjeevan scheme does not provide enough supplementary nutrition is a fact stated by ZP members. On the other hand ZP officers keep on saying that there is enough food to give in this scheme. Last year several padas had a gastro epidemic. This was when the Govt. machinery sped up and nutrition supplement started reaching Anganwadis.
- In the last the year pada health workers had not got their payment till January end. This year 1390 PHWs have been appointed but there is no payment till this moment.
- Some PHC doctors are yet to get salaries for the last 10 months.
- From 1987 four chief ministers visited Satpuda hills for this problem. Do we just wait for yet another CM visit¹ (and no result)?

STILLBIRTHS

Stillbirth statistics from MIS

The Stillbirth Rate is about 15/1000 live births in Nandurbar and Yavatmal, while it is incredibly low at 5.3 in Jalna, reducing next year to 1.1, which again can not be explained. The stillbirth data is basically unreliable in the situation where most births take place at home. Often an early neonatal death is pushed as Stillbirth.

Stillbirths are really of two types: a) those foetuses that died well before birth (28 weeks pregnancy) in the womb due to internal problems like hypertension or toxemia of pregnancy. Such babies look macerated and can be identified easily at one look. B) The other type is because of protracted childbirth--obstruction, unskilled help, access problems etc. These are either birth asphyxia (if the baby dies after birth) or stillbirths (if the baby dies just before birth). Some babies that die soon after birth are technically neonatal deaths due to birth asphyxia.

Stories of two stillbirths

1. NANDURBAR: This woman at Khatwani village (which has SC ANM also) delivered on 14 Sept. At 11 am. Attended by the trained TBA in the village. She is a second para mother. (The first baby is a 3-year daughter.) ANC check-up was done by Dr. Suryawanshi at Akkalkuwa (DHMS PMP). The first ANC check-up was done by Dr. Jain at Akkalkuwa (BAMS PMP). He checked in 5th and 6th month also. Then she was checked by Dr. Kazi (BAMS - PMP) at Akkalkuwa in June. No single case paper or prescription is available with the family. At the time of registration ANM had checked and given medicines. Also given medicines at 7 months. The woman worked in her farm till last month. The village TBA visited five times in 15 days before birth.

The TBA says she knew about breech position in 7th month by hand-palpation. The head was felt in flank says the TBA (?). She says she found the same position in 8th month. When she checked on the day of birth the feet of the baby were jutting outside. The TBA sat there from 7 am. Reportedly the labour pains were good. The family called the PMP from Akkalkuwa--Dr. Patel --who came with a retired nurse working with him. But they came late. The family also informed Dr. Suryawanshi. But he also came late. Both came after the childbirth. Each of them gave injections. One on the arm and the second on one buttock (could be methergin or oxytocin injection given for shrinking the uterus). The placenta (afterbirth) was expelled already when the doctors arrived. TBA says the feet came out at 10 am. And head followed 5 minutes later. Baby was full grown and full term. The family says childbirth occurred at 11 am. and Doctors came at 12 am. Asked whether baby was alive after birth the husband said there was movement for 1-2 minutes. But the baby did not cry. The face, feet and one side of body were blue. The cord was near the neck (Around?). The head was stuck up inside and the TBA removed it. The ANM was available in the village but was not called by the TBA or the family. The AWW came in the afternoon on her own. She was also not called. Bleeding ensued for 5 -10 minutes. The childbirth was done with the woman lying down.

¹ In 1997, the TOI carried a cartoon by RK Laxman which showed the CM and Dy CM visiting tribal pads and weeping over deaths of children; and a tribal old man exclaimss " the previous CM was better, at least he never wept like this one"

We (the researcher) examined the woman. She had no perineal (around birth canal) tears.

The ANM says the sub centre is not yet constructed. The ANM has conducted about 10 deliveries in this village so far and all were safe. But in this case the TBA did not call her as the TBA wants to claim money from the family. Often the ANM is slighted by families. And she complains that people think the TBA is superior. The ANM quotes a story about the TBA - "there was a twin delivery and I called the Doctor, as it was a difficult case. The doctor came with vehicle and wanted to take the mother to hospital. But the same TBA insisted on home delivery and was arguing with the doctor. Somehow the family shifted her to hospital and she was saved. The TBA does not want to refer any case".

2. JALNA: Smt. Mangala Ramesh Telangare came to village Bharaj (parents village) for delivery. Her first child, a daughter, now 2 ½ years old, was delivered in the same village at her own house by her mother. She is illiterate and was married at age of 15. Pregnant for 7 months, she had not received antenatal check-up at her husband's village. The ANM and Trained dai from Bharaj visited and examined her. She was diagnosed as having twin pregnancy. She was referred to Bhokardan (a taluka place, where Rural hospital is situated). The relatives ignored the advice due to financial hardships. It started leaking prematurely and after 6 days, she delivered. (Ideally the baby-sac ruptures just before birth. If it starts leaking much before, there is infection and may be death of the baby in uterus). The babies were preterm and stillborn. Her mother conducted the delivery. There was no checking of hemoglobin, weight record, urine, or BP. The twin-deaths were not recorded. (In Jalna infant deaths are recorded only if the mother belongs to that village and not of their married daughters coming to their parental homes.)

CHILD (1-5) MORTALITY

Child mortality is reported mainly by DSO (10% sample survey) and ICDS (for ICDS covered population). There is some mismatch in the statistics in the districts. The DSO survey in Jalna is not very good since the office was till now not very enthusiastic about the survey and credibility of information. In Nandurbar and Yavatmal, the DSO 2003 report put the CMR at 13.5 and 4.2 respectively.

U5MR (0-5 yr.) is actually IMR plus CMR ($U5MR = IMR + CMR$).

In Nandurbar, CMR is around 14 to 15. Which means 1.5 children die in every 100 children between 1y to 60 months. In Yavatmal it is just 4.2 (less than one death per 200 children in the age group) and in Jalna the figure is not available. The TRTI study in Nandurbar states that about 50% of CMR goes unreported and all these are not difficult/inaccessible villages.

U6MR (till 72 months) is relevant because ICDS serves this age group. The U6MR is expected to be in the same range as CMR, and in Nandurbar it stays the same. But in Yavatmal the figures are 15 and 4.2 respectively. This variation speaks on unreliable data, so the lower rate must be looked at with suspicion. A U6MR of 15 seems to be a reasonable estimate.

CAUSES OF DEATHS OF CHILDREN (COD)

The source of these figures is MIS reports, which arise from COD reports from PHCs. There is some influence on the figures of how the COD is reported in each district. For instance, in Nandurbar it is mainly ARI and LBW. Now LBW is an underlying cause and ARI is an immediate cause. In Yavatmal, lbw and Prematurity lead, followed by sepsis but there is no mention of ARI as a major cause. In reality, ARI must have been a cause of deaths in lbw and premature babies. Due to lack of reporting uniformity we get different CODs in each districts. Malnutrition is not a direct cause of death (starvation can be), but should be reported as an underlying cause. However malnutrition death is a red rag for some department and therefore the underlying cause is buried. The reporting format of COD is not very helpful for this.

COD Nandurbar

The annual COD data from Nandurbar has not been compiled in this study. However, from Somaval deaths, Horafali and Molgi infant deaths, ARI and sepsis emerge as important causes. LBW and Prematurity must be important, but do not come out as leading causes perhaps because of differential reporting emphasis.

COD: Yavatmal

Infant deaths due to Prematurity and lbw (719) make about half the infant deaths in total infant deaths (1462). Sepsis makes another 15% infant deaths. While the former cause needs Ante Natal prevention and post-birth management, the latter--sepsis-- calls for active neonatal care. Asphyxia makes another 8%, which is amenable to better skilled birth management.

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8. CAUSES OF DEATH, YAVATMAL DISTRICT MARCH 2002

	Causes of Deaths	0-7 DAYS		7-28 DAYS		0-28 days		28 - 1 YR		0-1 YEAR	
		I		II		III (I + II)		IV		V (III + IV)	
		No	%	No	%	No	%	No	%	No	%
A	Preterm /LBW baby	436	58	153	44	589	54	130	36	719	49
1	Prematurity	248	33	74	21	322	29	64	18	386	26
2	Low Birth Weight	188	25	79	23	267	24	66	18	333	23
B	Neonatal sepsis	64	9	62	18	126	11	98	27	224	15
1	ARI, Pneumonia	31	4	31	9	62	6	60	16	122	8
2	CNS e.g. meningitis, convulsions	20	3	19	5	39	4	34	9	73	5
3	Aspiration Pneumonia	9	1	3	1	12	1	3	1	15	1
4	Septicaemia	4	1	9	3	13	1	1	0	14	1
C	All others	246	33	136	39	382	35	137	38	519	35
1	Asphyxia	71	10	26	7	97	9	18	5	115	8
2	Twins	48	6	19	5	67	6	13	4	80	5
3	Congenital Deformities	40	5	32	9	72	7	20	5	92	6
4	Injuries during Pregnancy	17	2	12	3	29	3	8	2	37	3
5	Abd. distension, Appendicitis	11	1	7	2	18	2	16	4	34	2
6	Diarrhoea	7	1	9	3	16	1	4	1	20	1
7	Accidents, bites	0	0	4	1	4	0	3	1	7	0
8	Food Poisoning	0	0	0	0	0	0	0	0	0	0
9	Others incl. CHD, jaundice, asthma,	52	7	27	8	79	7	55	15	134	9
	Total	746	100	351	100	1097	100	365	100	1462	100
	Percent of total deaths	51		24		75		25		100	

Source: District Statistical Officer, Zilla Parishad, Dist. Yavatmal

Jalna study

The Jalna study includes some useful interaction on infant deaths with the Women's hospital.

9. IMPORTANT CAUSES OF DEATHS OF INFANTS IN WOMEN'S' HOSPITAL JALNA:

Causes	2001 (%)	2002 (%)	2003 (%)
Less weight	29.4	23	23
Asphyxia	24.6	7	2
Less days (Preterm) premature	8.7	24	23
Twins	5.7	2	4
Pneumonia	5	6.5	3
Sudden Infant Death syndrome	3.5	3	-
Convulsions	0.8	4	5
ARI	0.8	2	5
Gastroenteritis	-	-	3

Source DSO data on causes of Infant mortality: hospital register & report

About half of the infant deaths are ascribed to lbw/ Prematurity, 15% to neonatal sepsis and the rest 35% to all other causes including ARI and diarrhoea. The statistics is generated

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from COD inquiries by the medical officers. The lack of differential entries on immediate cause and underlying cause of death confuses the COD data. The premature baby may have dies either of sepsis or ARI and so on.

Early neonatal deaths and safe-neonatal care practices

Factors related to neonatal survival are:

- Avoiding delay in second stage of childbirth, which can cause asphyxia (smothering) of baby
- Wrapping immediately for warmth, avoiding bath for 3-4 days.
- Breast feeding for preventing hypoglycaemia (low blood sugar).
- Throat cleaning (somewhat controversial a factor)

From various interviews it appears that:

- There is no monitoring of second stage of birth by TBAs, they do not know much about its importance. They do not check internally as they do not have gloves and necessary training.
- The baby wrapping is done, but *only after a bath*. The early baby bath has stayed on the scene in most districts and cooling leads to lowering immunity against infection and loss of all-important calories.
- Breast feeding often starts after 2-3 days, as families feel that the early milk is no good.

Throat cleaning is done by some TBAs having clean gauze in the DDK. But throat suction is not done so often and many TBAs do not how to use the mucus catheter.

THE MIDDLE CIRCLE: DETERMINANTS OF CHILD MORTALITY

The middle circle includes close determinants of child mortality from antenatal-natal-post natal factors and childhood nutrition, illnesses and health services. We will start with a general picture of these factors in the three districts and then the individual factors.

RCH PROFILE OF THE 3 DISTRICTS**10. RCH INDICATORS OF THREE DISTRICTS**

S No	Indicator	Nandurbar (Dhule) (1999)	Yavatmal (1998)	Jalna (1999)
	ANTECEDENTS			
1	Age at marriage since 1995 : girls <18	40	27	56
2	Age at marriage of current married women 15-29 yr. age <18 yr.	71	68	76
	PROXIMATE DETERMINANTS			
	ANC			
3	Complete ANC	30	49	38
4	Institutional Delivery (ID)	31	37	28
5a	Pvt. ID	45	34	60
5b	Govt ID	55	66	40
6	Home delivery (HD)	70	63	72
6a	HD by Doctor	6	3	5
6b	HD by ANM	5	3	4
6c	HD by Trained Dai	30	38	9
6d	HD by Untrained	58	55	82
7	Post delivery visit within 15 days	26	37	20
8	Complicated delivery	85	28	80
9	Post natal complication	71	50	70
10	% sought treatment	48	73	64
11a	Source of treatment: pvt. doctor	69	64	75
11b	ANM	3	6	8
	Neonatal care			
12	BW taken < 2 days	33	37	18
13	LBW <2500 gm	7	42	3
14	Immunisation status: complete	69	74	78
	Visits by HW			
15	HH visited by ANM	90	95	96
16	HH visited by AWW	5	1	1
17	Level of satisfaction	90	97	91

Source: Rapid Household Survey, RCH Project phase II, CRT, Vadodara, Dhule and Jalna Districts, May 2000, Yavatmal district, March 1999

Since the study involves three different districts, there are some common issues and some different factors. The details of the individual districts can be separately grasped from the district reports/chapters. Here we will present the observations related to the inner circle of the figure--health.

MIS REPORT 2002-3

The MIS data from the state RCH bureau Pune collects and compiles all the RCH programme information every month and year. The following summary of facts is obtained from the annual MIS 2002-3.

11. MIS 2002-3 SUMMARY OF RCH STATUS (OTHER THAN CHILD MORTALITY)

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Indicator	Source	Nandurbar	Yavatmal	Jalna	Mah.
<i><u>Birthweight data</u></i>					
Birthweight taken %	MIS 2002-3	87	81	77	88
Out of the above babies					
% of less than 2 kg babies		2	4	4	5
% of 2-2.5 kg babies		25	48	55	34
% Birthweight>2.5kg		72	48	41	61
<i><u>Immunisation % achievement against Target</u></i>					
BCG	MIS 2002-3	88	76	110	101
DPT 3 rd dose		94	71	104	95
Measles		89	69	99	94
DPT-B		88	68	89	92
Double toxoid		103	93	106	90
Vitamin A 1 st dose		89	69	89	89
Vitamin A 2nd dose		87	68	89	84
Vitamin A 3-5 doses		72	55	78	66
Iron folic acid given to children		68	41	68	64
ANC mothers Tetanus Toxoid		80	68	94	94
Ranking of districts by Immunisation performance		13	15	22-33	NA
<i><u>Malnutrition from ICDS data</u></i>					
Normal children	ICDS reports	24	NA	47.6	
ICDS: Grade 1 children		42	NA	35.7	
ICDS: Grade 2 children		30	NA	16.2	
ICDS: Grade 3+4 children		1.3	0.4	0.5	
Pregnancy and maternity					
Total livebirths		29320	34772	33213	510294
ANC coverage against target	MIS 2002-3	85	68	98	93
% U16 week ANC registration	MIS 2002-3	60	59	84	72
% of mothers given Prophylactic iron FA	MIS 2002-3	124	152	119	122
%of mothers given therapeutic Iron FA	MIS 2002-3	63	42	64	72
<i><u>Birth services statistics</u></i>					
Total births reported, as % expected births	MIS 2002-3	84	68	88	73
Home births attended by Untrained person	MIS 2002-3	8	4	8	5
Home births attended by Trained Dai	MIS 2002-3	65	40	39	23
Home births attended by Nurse/doctor	MIS 2002-3	15	18	14	15
% of institutional births	MIS 2002-3	11	39	40	58
% Mothers giving birth to 3rd+ baby	N bar MIS	44			

MATERNAL HEALTH

ANC, natal care, PNC make the important components of RCH programme, affecting both maternal morbidity and mortality. Quality of services is as important as coverage. However, age at marriage and family planning services also are important factors in maternal health.

Age at marriage

Early marriages continue in all districts. In certain communities, where education of girls has shown upward trend, the age of marriage has gone up to 18+. However it seems that the age is 're-formed' at marriage to avoid legal implications. While visiting PHC and SC, most of the ANC mothers we met looked lower than the 'standard' ages: 1st para - 19 yr., second para - 21 year!

Antenatal care

12. ANC FACTS FROM MIS 2003

Pregnancy and maternity	N'bar	Y'mal	Jalna	Mah.	Source
Total livebirths	29320	34772	33213	510294	MIS 2002-3
%ANC Coverage /target	85	68	98	93	MIS 2002-3
% U16 wk ANC registration	60	59	84	72	MIS 2002-3
% of mothers given Prophylactic iron FA	124	152	119	122	MIS 2002-3
% mothers given therapeutic Iron FA	63	42	64	72	MIS 2002-3

The RRHS data (1995) reports a very low ANC coverage for all the three districts (30, 49, 34 %). The data obtained from DGHS for Financial year 2002-3 (see table 11) however has different figures--85%, 68% and 98%--against *targets* set by the State RCH Bureau. The huge gap may either have been filled by RCH programme or it may be because the targets are set low, not taking into account the high birth rates in the three districts.

The ANC registration before 16 week is necessary for a better and timely Maternal care. Against targets given by the RCH bureau the achievement levels are about 60% in Nandurbar and Yavatmal, but higher in Jalna (74%), even higher than the State average of 72%. However a PHN observes in Nandurbar that many of the 16 week registrations are actually are done at about 20-26 weeks but entry is made as 16 weeks.

The quality of ANC and risk detection

The quality of ANC coverage can not be caught in these figures. Often the ANC is reduced to TT and iron tablets. Detection of risk factors is not very systematic or rigorous. ANC check up is usually done at MCP sessions. At many subcenters there are no facilities for ANC check up--like privacy, faetoscope, BP apparatus etc. It was seen that in one SC in Nandurbar, even risk factors were not mentioned in the register. The cards for mothers are also not comprehensive enough. Often they combine mother and child factors in the same card and either side is not comprehensive.

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Interviews with PHN in Nandurbar raise an important question: if there are risk factors detected, where to refer the mother; there are no FRUs to talk of. MO PHC at Horafali says that referring for risk is pointless, there is no care available and people have to walk and travel and spend money in vain. The detection of risk is reported in the district MIS reports, but is not reflected in the RCH bureau compiled reports. Here are some facts:

In Nandurbar district MIS report of August, total ANC registration of 15741, 1791 (11.4%) were detected as high risk. Of these only 423 (25%) were referred to PHC/RH and what happened to them next was not clear. The outcome of the referral is also not clear. Back at SC level there is very weak record of risk detection leave alone follow up. What happened to those referred is not clear.

Jalna

13. RISK REFERRALS IN JALNA WOMEN'S HOSPITAL 2002-2003

Sr. No	Details	Number of cases
1A	Eclampsia – Antepartum	5
1B	Eclampsia Postpartum	1
2	Primigravida with delayed labour	14
3	Multigravida with delayed labour	16
4	Pregnancy induced Hypertension	7
	Pregnancy induced Hypertension with IUD	1
5	Post partum haemorrhage	2
6	Anaemia ANC	2
6B	Anemia PNC	2
7	Previous LSCS	2
8	Antepartum haemorrhage	4
9	Foetal distress	2
10	Premature rupture of membranes	3
11	Breech	2
12	Septicaemia	2
13	Incomplete abortion	2
14	Shoulder presentation	1
15	PNC with coma	1
16	Ectopic pregnancy	1
17	Transverse lie	1
18	8 th gravida with herpes	1
19	Cord prolapse	1
20	Preterm labour	1
21	Hydrocephalous with IUD	1
22	ANC with Diabetes	1
Total		76

In Jalna Risk detection in ANC was 6.6 % in 2002 and 4 % in 2003. A typical FRU statistics from Jalna Women's Hospital is given in table 13.

There is also a typical story from Jalna about how ANC services by ANMs are weak (the blame goes to the health system care, not the individual ANM). This is the same story we quoted in neonatal deaths (see page 34).

The ANC card

There seem to be at least three cards for ANC - MCH in use. New and old cards from GOM health dept are in use. UNICEF has introduced one card in Nandurbar district. However neither of the cards match the ideal requirements. Often the card tries to combine both maternal and child needs/services and neither sector are complete. These cards are filled by ANMs and given to mothers. However not every mother checked had such a card.

Mother-Anaemia and Iron tablet distribution.

There are no direct figures on anaemia, and there is not much of Hb statistics to talk of at the ANM level. The programme of distribution of iron-folic acid- tablet (IFA) sets targets for districts. The targets are: Prophylaxis of anaemia (single tablet daily for 100 days) and the other is Therapeutic IFA distribution (2 tablets daily) for anaemic mothers (Hb below 8 gms). Since there is a target for each, it is not possible to say that the therapeutic category is same as severe anaemia, but it could be. In the latter case, the achievements (hence % of anaemia) are lower in the 3 districts than the state average. It is safer to conclude that the achievement against target is low, rather than anaemia itself.

The magnitude of the anaemia problem can be understood by the fact that 57 women received blood transfusions at Women's hospital in the months of June, July and August 2003. It can be presumed to be due to iron deficiency anaemia. The reasons for anaemia can be malnutrition, poverty, illiteracy, lack of nutrition education, ignorance, social taboos etc.

The Hb estimation is done by Sahli's haemoglobinometer. There are no entries of Hb estimation with ANM. After Hb estimation, she decides the type of treatment. It is not possible to comment upon error of estimation. However, ANM knew method and procedure of Hb estimation. The haemoglobinometer, pipette, 0.1 N HCl were in good condition. The target decided for prophylactic and therapeutic treatment is 50 % each.

The estimation of anaemia is usually done in 1st ANC visit. The percentages of pregnant women registered before 16 weeks of weeks of pregnancy are 69 in 2001, 82 in 2002 and 84 in 2003. That means majority of pregnant women have Hb status at the end of 16 weeks. For rest of pregnancy, which is 150 days, they receive iron + folic acid tablet (IFA). In spite of the treatment of anaemia, the incidence of LBW is high. There is a popular belief that with the iron tablets, the baby will gain weight, which will make labour difficult. A baby of good weight is more active. Hence the belief that small babies are good for mother. Mothers are also fed with the same belief. taking these facts together a strong possibility exists that the IFA tablets may not be consumed at all. (It is tempting, but irresistible to suggest to have a program like DOTS for anaemia also). Or else the IFA may be ineffective due to poor quality or the anaemia might

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be of resistant type. Something needs to change in this context so that anaemia is compensated or prevented.

Maternal malnutrition

The anaemia is caused by deficiency of dietary iron. The daily requirement of iron is increased during pregnancy. Which means the pregnant woman has to increase her diet rich in iron. Usually it is advisable to have an extra meal. We discussed this issue in Mahila manilas. The family members take no extra effort to increase the quality and quantity of the diet. On the contrary, the pregnant woman has to work on her land. The physical distress, lack of adequate rest, and deficient diet, all put together lead to malnutrition of mother and ultimately to preterm or LBW. The underlying poverty makes her working in the farm mandatory rather than compulsion from her family. The concept of having less food is related with the prospect of having a large baby. The large baby may be difficult to deliver or may require a caesarean operation. The per capita district domestic product is 8049 as compared with state average 15804. The Human Development Index for Jalna is 0.26 as against state 0.56 in 2000. This gives an idea of prevailing poverty in the district. Efforts on these also demand attention to change the scenario of infant deaths.

ANC weight series in Nandurbar

In Lonkheda sub centre we took a series of ANC entries for parity, weeks of registration and current weight.

- The average weight irrespective of parity and gestation size is 45.75 Kg. assuming an average gestation size of 24 weeks (6 months) the starting or non-pregnant weight could be less by 6 kg at least (ideally 9 kg weight gain in 6 months). This means an average weight of 39 kg. Low body weight is itself a risk factor in pregnancy.
- Some weights are not taken.
- ANM SC Lonkheda I has no weight machine.

Variance in Risk factor perception:

There is no one policy on the listing or sequence of risk factors for mothers. Here is some evidence from Yavatmal-- the new MCH indicators of at-risk mothers and babies in GOI training book as compared to the one displayed inside a SC.

14. RISK FACTOR LISTING: DIFFERENT STROKES

AT RISK MOTHERS		AT RISK BABIES	
On the SC walls	UNICEF MCH manual	On the SC walls	UNICEF MCH manual
BP > 140 mm of Hg	Convulsion #, dim	1. BW < 2500 gm#	LBW#

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Convulsion #	vision, headache, vomiting, oedema	2. Difficulty in breathing#	Difficulty in breathing#
Wt increase > 5 kg/m	-	3. Jaundice#	Jaundice#
20 < Age > 30	-	4. Convulsion#	Convulsion#
> 4 para	-	5. Cong. Abnormality#	Cong. Abnormality#
APH#	APH, bleeding during pregnancy, PPH	6. Injuries during labour	-
H/O Caesarean Section	Fever before or within 1 month after delivery	7. Late Breast feeding	-
No foetal movement	Prolonged labour >12 hours	8. Difficulty in breast-feeding#	Difficulty in breast-feeding#
	Severe anaemia, breathlessness		Hypo- or hyperpyrexia
			Unconscious or crying continuously
# are matching factors			

Source: For new indicators - *Mata Bal Sarakshan* a Manual, Ministry of Human Resource, GoI, 2003.

The new set of risk indicators has taken into account common indicators at the field level. In Yavatmal the recollection of common risk indicators for mothers by ANMs and TBAs include 4 out of 5 new indicators. The new indicators are combination of prenatal and natal indicators. The common indicators of risk recollected by ANM are: Low (mother) weight, Convulsion/high BP, multipara, Anaemia, foetal lie and foetal position. The same at TBA level is Bleeding, convulsion and obstructed labour.

Pregnancy Outcome

15. PREGNANCY OUTCOME FROM RRHS AND MIS DATA

Pregnancy outcome	Mah.	N'bar		Y'mal		Jalna	
	NFHS2	RRHS, 1999	RCH March 03	RHS, 1999	RCH March 03	RHS, 1999	MIS March 03
Live Births	93.0	96.0	96.0	94.0	94.8	95.0	88.0
Still Births	1.5	0.6	2.2	0.7	2.0	0.7	1.0
Spont. Abortion	3.5	2.7	1.1	4.7	1.3	2.8	5.4
Induced. Abortion	2.0	0.7	0.5	0.9	2.0	1.1	5.2
Total Pregnancy Outcome	100	100	100	100	100	100	100

- Stillbirths continue to be 0.6% -1.0 as pregnancy outcomes in all the 3 districts. This is less than the state trend as per the NFHS 2 data. The underreporting is a known fact.
- However, Jalna and Yavatmal show more spontaneous and induced abortions than the RHS data and this is probably because of hospital data.
- Since many spontaneous and most medical abortions go unreported esp. in tribal-rural areas, the actual percentage could be higher.

CHILDBIRTH SERVICES

16. PROFILE OF BIRTHING IN THE THREE DISTRICTS

Pregnancy and maternity	N'bar	Y'mal	Jalna	Mah	Source
-------------------------	-------	-------	-------	-----	--------

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Births reported as % of expected births	84	68	88	73	MIS 2002-3
Home Births(HB) and Institutional births(IB)					
HB by Untrained BA %	8	4	8	5	MIS 2002-3
HB by Trained BA %	65	40	39	23	MIS 2002-3
HB by Nurse/doctor %	15	18	14	15	MIS 2002-3
% of Institutional Births	11	39	40	58	MIS 2002-3
% of Mothers giving birth to 3rd+ baby	44				N bar MIS

Births registered against expected targets

Yavatmal has a low registration of births against expected targets. How these targets are calculated is not clear, probably by state CBR. This may underestimate births in backward districts like Nandurbar or Yavatmal. In that light all the district achievements seem to be low. This is actually borne out by BCG achievements which is higher than 100% in Jalna, and around 99% in Maharashtra.

Home births by Untrained and trained TBA

The MIS chart 2 offers figures on the birthing services in the 3 districts. In all the three districts, attendance by untrained (not trained) TBA is small (4-8%) since many TBAs have been trained in the last 2-3 years, esp. in tribal districts.

In Nandurbar the trained TBA is the major service provider, and the next is the skilled attendant (ANM or doctor). The Institutional childbirth is also smaller (11%) and is only marginally higher than untrained TBA. In Yavatmal, the Trained TBAs attend conduct almost as much births (40%) as the institutions (39%). There must be a blockwise variation within these categories. Jalna also has almost similar situation.

It is notable that there are some men TBAs in Nandurbar from the list of traditional healers in its tribal blocks. Whether they were also trained by Govt Health system is not known.

Home births by skilled Attendants

About 14-18% of home births are done by ANM or a visiting doctor called by the family. Sometimes the doctor can be the MO PHC. The ANM is surely skilled and but for her mobile duties in a population of 5000-3000, she could have done all the home births. Generally the quality of birth care by ANM is much better than the TBA. At least her risk detection is much better than the TBA. But there are no comparative studies on this subject in Maharashtra.

The skills of an average private doctor in rural areas are of no help. As many interviews confirm that they give injections (often an indiscreet and potentially harmful injection of Oxytocin) and vanish from the scene, collecting something like 50-100 Rs.

Institutional Births

Nandurbar, Yavatmal, Jalna have fewer institutional births (11%, 39%, and 40%) than the state average. The SC is also included in this category. Nandurbar is especially poor at 11%.

The quality of the 'institutions' is another matter that can not be captured in the figures. The Jalna Women's Hospital is reportedly a good unit, but even here, Obstetricians are on call, and not available in the campus for 24 hours. PHCs are not very good at it. In one PHC in Nandurbar, we saw that even birth-case-records are not kept (just 1-2 lines). It is therefore difficult to judge the quality of birth services.

Although births at health subcenters are defined as 'institutional' births, there is a lot of qualitative difference between SC and say a FRU. The State MIS reports do not give the break up but district reports do give such break up. The major sharing is between Govt hospitals and the Pvt. hospitals. A typical institutional break up is quoted from Nandurbar report:

TBA training & practices

In the last 2-3 years, TBA training is done in all districts and somewhat intensively in UNICEF-UNFPA districts, Nandurbar being one of them. In the average district, 6-monthly one-day TBA meetings at each subcenter are the principal mechanism of TBA training. The intensity and depth of the programme therefore vary directly with ANM/SC efficiency. At places it is just calling them for meeting and giving the 40 Rs allowance and DDKs. Many TBAs do not see this as training; when asked about when they were trained last, they talk of 3-6 year previous training at some hospital. At other places there could be actual hands on experience of birthing or ANC risk factor detection. There is not much follow up after that except the note in ANC/pregnancy outcome register about who did the birth of whom. However, most TBAs in most districts have undergone some exposure to safe birthing, described in the booklet for ANMs. Secondly many of them do practice 3-5 safes prescribed in the programme:

- Clean hands,
- Clean blade,
- Clean thread,
- Clean ground, and
- Clean cord

The last two are variable factors. The low percentage of births attended by untrained TBAs is evidence that most TBAs have undergone training in the districts; however the quality, content, and impact of TBA training is another matter. Though most TBAs are now trained, following observations can be made about TBA services:

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- From the TBAs' risk-referral pattern observed by the team in the districts, there is not much improvement.
- There is also a mismatch between training and actual practices esp. as regards squatting birth versus lying down childbirth.
- Use of gloves by TBAs is limited to ANM's supplying her the gloves. The supply is favour and not a rule or right of TBAs.
- In Nandurbar, the TBA interviewed did not know the use of the elaborate kit given to her by UNFPA project.
- ANC and PNC care may be part of training, but is not part of practice by any TBAs as seen from the interviews.
- TBAs neither conduct antenatal examination nor have knowledge regarding danger signs in labour.
- There is no record suggesting the difficulties encountered during delivery. Obstructed labour (Primi and multi) forms the majority of referrals in Women's hospital. The maternal mortality in 2001 and 2002 (combined) is chiefly due to post partum Haemorrhage.
- The incidence of Puerperal sepsis is very low. Cases of neonatal tetanus are also not seen. This can be attributed to the practice of 5 cleans. The cord cutting by a new blade is an accepted norm. Practice of breastfeeding during first 3 days is rare.

Institutional births in Nandurbar

About 68% of institutional births are in Govt centres and only 32% in Pvt. hospitals. This is expected in backward districts esp. when even private hospitals are not many.

17. INSTITUTIONAL BIRTHS IN NANDURBAR

Break up of Institutional births	N	%
Health Subcenter	59	3.8
Primary Health Centre	239	15.5
Rural Hospital	623	40.4
District Hospital	126	8.2
Private Hospital	495	32.1
Total	1542	100.0

EOC facilities in hospitals

In Nandurbar, till Oct 2003, only 6 LSCS operations were done--six cases in six months. In Yavatmal district hospital and Jalna women's hospital, these services are well established. However in any district, the Rural hospital is not running full EmOC services.

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MATERNAL DEATHS

MMR statistics at the state level is plagued with several problems. It is mainly based on hospital data and hence underreported. Further it is unreasonable to work out a MMR from small samples. It is better to talk about maternal deaths rather than a Maternal Mortality Rate.

Nandurbar

18. MATERNAL DEATHS IN NANDURBAR DISTRICT IN AUG 2003-MIS REPORT

No	Age	Para	PHC area	Block	TT	Who helped	When	Complication	Predictable ?
5	35	5	Somaval	Taloda	yes	T-TBA	PN	?	?
6	22	2	Khapar	Akkalkuwa	yes	ANM	AN	abortion	?
4	30	5	Son B	Dhadgaon	yes	T-TBA	Intranatal	Hand-Prolapse	Yes
7	21	1	Dhanaje	Dhadgaon	?	? No one	AN	PET	Yes
9	30	3	Nandurbar Maliwada	Nandurbar?	?	ANM	PN	PET	Yes
1	27	2	Vagharde	Shahada	yes	U-TBA	PN	PPH	No
2	35	7	Valheri	Taloda	?	U-TBA	PN	PPH	No
8	38	9	Rajbardi	Dhadgaon	?	U-TBA	PN	Retained placenta	No
3	38	2	Molgi	Akkalkuwa	yes	? No one	AN	Severe anaemia	Yes
? = Not Known									

The August 2003 Maternal Mortality Inquiry brings out the following facts (Table-17).

- In just one month, 9 maternal deaths, mostly from the two difficult blocks. But this is probably because it is month of August
- 5 Out of 9 are multipara, only one of them is a 3rd para mother, the rest being 5th, 5th, 7th and 9th para mothers.
- The stated age for some of them could be wrong, as four of them are either primi or second para and still above 20 years of age.
- Four of the nine had TT doses but five are probably not immunised.
- Three of these women had been attended by untrained dai and probably two more as there is no mention of who help them.
- In two cases trained TBA has helped and the two other by trained health worker. In three cases it was untrained TBA and in two other there was none (?).
- One of them is due to abortion.
- Four of them are PNC cases, three ANC and two during childbirth. Among the PNC PPH is the predominant cause.
- The report does not mention whether the deaths occurred at home or at hospitals.

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- The ANC causes mentions Pregnancy Toxaemia (PET), hand prolapse, severe anaemia all of whom could have been referred to hospital.
- There is only one urban maternal death. The rest being rural.
- In the progressive MMR report PPH and retained placenta together make half the cases and are perhaps unavoidable in the home situation. However what led to 6 PPH cases could have been known.
- Although the progressive column of August 2003 report states anaemia to be the cause of death in one case, most of them may have had anaemia.

Yavatmal

19. MATERNAL DEATHS BY CAUSES IN YAVATMAL DISTRICT HOSPITAL 1992-96

Maternal Mortality Ratio as per the study (1992-96)	1049 per 100,000 live births
Maternal Mortality Ratio as per DHO (1999)	120 per 100,000 live births
Direct Causes	58%
Haemorrhage	29%
Eclampsia	12%
Sepsis	12%
Others	4%
Indirect Causes	21%
Anaemia	13%
Others	8%
Unrelated causes	21%
Source: Ramteke S; Pajai SP, 1996	

- The MMR at a reference hospital is high since most of the emergency cases are referred there. Here it is almost 9 times higher than the Vitamin al statistics report.
- Haemorrhage is an emergency particularly because it occurs suddenly either before, during and after birth. Maternal deaths because of haemorrhage require a well-equipped blood hospital with blood bank.
- Early detection and quick referral to a hospital with basic facilities can avoid maternal deaths because of all other causes. About 49% of maternal deaths are avoidable by early referral.

Jalna

A typical picture causes of maternal deaths is given here from Jalna Women's Hospital

20. CAUSES OF MATERNAL MORTALITY 2001 AND 2002

Sr No	Causes of Maternal deaths	2001	2002
1.	Antepartum Haemorrhage	6	1
2	Postpartum Haemorrhage	2	5
3	Hyper pyrexia	-	-
4.	Toxaemia of pregnancy	-	-
5	Septicaemia	1	-

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6	Eclampsia	-	-
7	Shock	-	-
8	Retained placenta	1	2
9	Pulmonary embolism	1	-
10	Deep Vein Thrombosis	2	-
11	Other	-	6
	Total	13	14
Source: MIS DSO			

Antepartum (during pregnancy) and postpartum (after pregnancy) haemorrhage were the commonest causes of death.

21. MATERNAL DEATHS IN WOMEN'S HOSPITAL, JALNA

Month	No. Of deaths	Causes of death
July 2003	2	PNC with intracranial haemorrhage -----1 Primigravida with Hepatitis ----- 1
August 2003	2	III gravida with severe anaemia with PPH -1 Postpartum Eclampsia with hyperthermia ---1
Source Labour room register WH Jalna		

There were 4 maternal deaths in month of July and August 2003 in Women's hospital. PPH, Eclampsia and Hepatitis were the causes of death. The ICDS reports just 9 maternal deaths in 2003. The data may be incomplete.

MATERNAL MORBIDITY

We have some useful statistics from Jalna district on maternal morbidity and the same can be a common picture in all districts.

22. REFERRED CASES IN 3 MONTHS IN JALNA WOMEN'S HOSPITAL

Case	%	N in 3 months
ANC with Anaemia	13.4	17
Gastroenteritis	15.7	20
Ante partum haemorrhage	9.4	12
Retained placenta	1.6	2
Pyrexia	0.8	1
Infective hepatitis	7.1	9
Eclampsia	22.8	29
PIH Pregnancy induced hypertension	9.4	12
PPH(Post delivery bleeding)	1.6	2
Puerperal sepsis	3.9	5
anaemia after delivery	4.7	6
Intrauterine death	8.7	11
Vesicular mole	0.8	1
TOTAL	100	127

The commonest illness seen during antenatal period is Pregnancy Induced Hypertension, followed by gastroenteritis and antepartum haemorrhage. During June to August 03 , there were

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29 cases of eclampsia (a severe illness of convulsions) , 20 cases of acute gastro enteritis, 17 cases of anaemia, 12 cases of PIH , 12 cases of APH and surprisingly 11 cases of intrauterine death. There were 4 cases of Puerperal (post-birth) Sepsis.

The Cesarean section rate at Women's hospital during Jun – Aug 03 was 19.9 %. Out of 1395 total deliveries 70 underwent LSCS.

Referrals

In Jalna 76 patients (maternal) were referred to WH in Aug and Sept 03. Obstructed labour (39 %) was the commonest cause for reference followed by PIH--Pregnancy Induced Hypertension (9.2 %) and Eclampsia (7.8%). In Jalna 165 patients were referred from PHC / RH during Jun 03 to Aug 03 in WH which constituted 16.2% of total admissions in WH.

A special referral chit was seen for EmOC. For urgent referrals a red coloured form is filled. The patient after reaching the hospital is allowed to bypass all the necessary formalities and can reach directly to the treating doctor.

The Varud PHC referred 12 patients in the span of 8 months. The commonest cause was obstructed labour and PIH. 57 patients were referred to PHC Varud from subcentres and dais from Jan 03. People don't take cases to RH Bhokardan now as the Gynaecologist has resigned and started his own private practice. (This is a common scene in health services, the lure of private service and disdain for Govt job makes doctors leave the job after 3-4 years and start pvt. hospital in that town; often the private practice starts much before actual resignation)

23. REFERRALS FROM PHC / RH, TO WOMEN'S HOSPITAL : AUG AND SEPT 2003

Sr.No	Details	Number
1A	Eclampsia – Antepartum	5
1B	Eclampsia -Postpartum	1
2	Primigravida with delayed labour	14
3	Multigravida with delayed labour	16
4	Pregnancy induced Hypertension	7
	Pregnancy induced Hypertension with IUD	1
5	Post partum haemorrhage	2
6A	Anaemia ANC	2
6B	Anaemia PNC	2
7	Previous LSCS	2
8	Antepartum haemorrhage	4
9	Foetal distress	2
10	Premature rupture of membranes	3
11	Breech presentation	2
12	Septicaemia	2
13	Incomplete abortion	2
14	Shoulder presentation	1
15	PNC with coma	1
16	Ectopic pregnancy	1

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17	Transverse lie	1
18	8 th gravida with herpes	1
19	Cord prolapse	1
20	Preterm labour	1
21	Hydrocephalous with IUD	1
22	ANC with Diabetes	1
Total		76

Case story of Eclampsia

Sunita Taksal, a primigravida, from village Shewaga (Tal-Ambad) was brought to Women's hospital Jalna in a state of convulsions. She was not registered antenatal, nor was investigated for anaemia. She did not receive Iron tablets. Suddenly she experienced headache followed by convulsions. The transport facility was available immediately. They had to hire a private vehicle from a nearby village. Then the patient went to a private practitioner and then to a PHC, but did not receive any treatment and referred to women's hospital. Ultimately patient arrived at women's hospital after 6 hours after first convulsion. Treatment at WH was started immediately with MgSo4. The mother and baby survived.

24. REFERRALS OF ANC IN JALNA DISTRICTS

	2002		2003	
AN Registration	43167	100	41951	100
High risk ANC	2864	6.6 %	1696	4.0 %
Complications Referred	862	1.9 %	847	2 %
Source RCH MIS DSO				

The districts RCH report mentions about referrals. Some 1.9 % of total ANC registrations (30% of high risk pregnancies) in 2002 and 2 % of total ANC registrations in 2003 (50% of high risk pregnancies) were referred to RH / WH.

"Stitch in time saves nine"- Story of Ganga

Ganga resides in a village called 'Shewali'. She is pregnant for third time. She has to work in her own farm for her livelihood. She received only 2 tetanus injections. This was the only antenatal care given to her. She was III gravida and Para I . She had undergone previous 2 Caesarean operations. She knew that she was a high-risk case. She had experience of Caesarean operation. All of a sudden, while working in the farm, her labour pains (leaking) began. There was nobody to help her. She had to walk almost for half kilometre to reach a nearby hamlet. After request, a bullock cart was arranged, which was the only available vehicle. Without wasting time (became wise with previous experience) at PHC or subcenter, she came directly to Women's Hospital Jalna. It took 3-4 hours to reach Jalna. Immediately a caesarean operation was performed. The baby and mother were safe.

POST NATAL CARE

The forty two days (6 weeks) after birth are important for both mother and baby's health. Some Morbidity and mortality can be prevented with simple primary care in this period.

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For this, postnatal visits by ANM or at least a trained TBA are necessary. Following components are important:

- Checking the mother for signs of bleeding, infection, depression,
- Checking the baby for cord-infection, anomalies, feeding, ARI
- Advice and care of the baby with early breast feeding, warmth etc

In the state, PNC visits are not even as good as good ANC services. Even if they happen, they happen late after 2-3 days. Early and complete care of mother and baby are less common. The State MIS report does not mention PNC visits.

This picture about PN care in Yavatmal can be representative: Post Natal Care *coverage* seems to be adequate but its *timing* erratic. Although the district data about when the PNC visits were conducted particularly for LBW babies could not be accessed (CSSM report has no column for PNC.) looking at the 3 PHCs visited it seems that the number of PNC visits were adequate (74 -100%) but not when really required i.e. within the first 10 days where there is baby with LBW. (10 to 64% of expected visits). There was no clarity about number of expected visits. (From 3-64% of LBW deliveries were given PN care). It is not just health system shortfall that contributes to this problem, there are factors like lack of information, staff shortage and transportation problems. However, only numbers as targets may not serve the purpose of quality of PN care.

BIRTHWEIGHT, CHILD HEALTH, AND ILLNESSES

Birthweight

Birthweight profile is a hard core problem in RCH as about 39% babies in the state are born underweight (HDI). Low birth weight (LBW) is one cause of continued low weight gain in later life of child (but this is not necessary, and it can gain weight with good care).

25. BIRTHWEIGHT PROFILE IN 3 DISTRICTS

Birthweight data	N'bar	Y'mal	Jalna	Maharashtra	Source
Birthweight taken %	87	81	77	88	MIS 2002-3
% < 2 kg babies	2	4	4	5	
% 2-2.5 kg babies	25	49	56	34	
% Birthweight>2.5 kg	72	48	41	61	

The percentage of weight not taken is variable in the three districts, Nandurbar 13%, Yavatmal 19 and Jalna 23% stands highest. This omission is rather high for Jalna. Surprisingly wt taken category (87%) for Nandurbar is about the same as for the state of Maharashtra (88%).

In the Birthweight profile the high figure (72%) of normal weight in Nandurbar is contrary to expectation, even better than the total state average of 61%. In Jalna the middle category (2-2.5 kg) is bigger than the state figure of 34%. Much of the recording is done by

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ICDS AWW and then by the ANM. It is also queer that low Birthweight (<2 kg) is very small proportion in all the three districts, smaller than the state average of 5%.

The process of Birthweight recording is ridden with problems and the wt not taken category may alter the low Birthweight substantially.

Birthweight as a risk factor for safe birth

While Birthweight is a determinant of child survival, families perceive it as a risk factor for safe childbirth and the absence of accessible EmOC services does not help assuage this belief. A bigger baby takes longer to negotiate the birth passage, which not only may jeopardise the baby's survival but the childbirth may itself can get obstructed and cause maternal death. This factor emerges in interviews in Nandurbar and Jalna.

Premature baby (preterm babies)

Many babies are born preterm and their survival needs special care at home or hospital. In rural statistics the exact percentage is difficult to estimate since the primary diagnosis requires LMP and EDD and often rural women do not know LMP. Once the baby is born, there are clues about prematurity. Even after birth it may be missed since most childbirths are done by TBAs. Many lbw babies may actually be preterm babies.

ARI (pneumonia) control

ARI is well reported in Nandurbar, though this may be only a small part of ARI reality in the district. However, the fatality is rather high at 21.7% of the number of reported cases in Aug 2003. In Yavatmal the fatality is under 1% of reported cases (1381 in Aug 2003). There are the same protocols for ARI treatment, and the same infrastructure, but cure rates are vastly different. (This needs more inquiry.) In addition in Nandurbar there are some special problems like lack of roads. The following story from Horafali (Nandurbar) can be typical.

Story of ARI case-Horafali

As we--the research team-- began uphill to the Horafali PHC (which is two hrs away for us on foot), a couple with a baby in her arm descends from the hills (see photo). She is Mojubai Pandya Kandy Kadavi. The family hails from Horafali village. The baby has visible ARI. The couple met the doctor who was walking ahead of us by one hour. The doctor declined to treat the baby saying he has no requisite medicines for this illness. (In fact the PHC had enough of these medicines as we later saw). The poor couple went to village Moramba (also a PHC village) but visited a private doctor, spent over 150 Rs. and came back. We met them in the evening as we began to descend from Horafali after finishing the visit. The couple made the uphill journey with an ill baby. Fortunately it was sunshine day in this August. On the way are two shallow streams. The sadder story is that there was a road constructed last year, which is now washed away completely--a typical telltale story in several tribal-rural areas. This was road from the PM's Gramsadak Yojna.

In another story from Jalna, we see a lack of proper treatment by ANM and a PMP.

Dhamini, an 11 months old girl, had complaints of fever, cough, vomiting and refusal of feeds since 7 days. In local language she was suffering from "*dabba*" (Broncho-pneumonia) Her father is a non-skilled labour and had to earn his daily livelihood. On 1st day Dhamini was taken to ANM where symptomatic treatment was given. There was no relief hence she went to PMP where she received symptomatic treatment and antibiotics. But still there was no relief; hence she was taken to PMP at Bhokardan. Here probably some steroid was given. Unfortunately there was no relief yet; hence they decided to go to a bigger town called Dhad (Buldhana district) The PMP gave her higher injectable antibiotic (Taxim) On 7th day she had relief. She also visited local quack. He tied a string around her waist. The parents feel that it is the effect of the string, which has saved the baby. The cost of treatment was 310 rupees. They sold the earrings for 250 rupees. The road to Primary health centre is bad. There are good communication facilities to the PHC or RH. So people rely on local transport, which is easily and frequently available. We discussed the case with ANM. She told that besides symptomatic treatment she could not do anything. The ANM is ready to treat if she is permitted by the govt. (*This is not true, they can give ARI treatment!*) In fact according to her, if she is taught curative skills, she can be of great help and can certainly curb down the mortality and morbidity.

(See also the story of Laxman from Yavatmal in the section on infant deaths.)

Diarrhoea control

ORS for diarrhoea is now part of the strategy at primary care level. Nandurbar data shows that only two children died when 4780 cases occurred in just one month. In Yavatmal, 1319 cases were reported in August 2003, and there is no death. In terms of effective treatment this is a success. It is not known how many children went to private doctors or traditional healers for treatment, and there can be many more who were not reported because the ANM could not get in contact or it was not recalled when she met families. The figure of actual diarrhoea cases could be 2-3 times this figure.

In Nandurbar and Yavatmal tribal blocks, pada health workers keep ORS, which can be of great help. An interview with a PHW revealed that he had treated his own child with ORS- a matter of credibility for the ORS programme.

There are no reliable figures from Jalna. The water sample report of Jalna showed 50% contamination in the monsoon months, which means there could be a high incidence of diarrhoea.

The role of PMPs in diarrhoea control by way of antibiotic treatment does not figure anywhere, as this issue is not covered by current MIS. However this is presumably an important factor in diarrhoea control.

ICDS AND MALNUTRITION PROFILE

26. MALNUTRITION FROM ICDS DATA

MIS 3	Malnutrition ICDS data (% of children in ICDS in various grades)
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	Nbar	Jalna	Yavatmal
Normal	24	47.6	NA
Grade 1	42	35.7	NA
Grade 2	30	16.2	NA
Grade 3+4	1.3	0.5	0.4

Table 26 offers the malnutrition profile of the three districts as it appears in the ICDS data. From Yavatmal, we could not get full statistics of malnutrition beyond the percentage of grade 3 & 4 children (together 0.3%). From Jalna it is about same for Grade 3 and 4 and for Nandurbar 1.3%. Jalna has higher percentage of Normal weight children.

The low percentage of severe malnutrition (grade 3 & 4) raises several questions:

- First of all, is severe malnutrition really so low? The Somaval study by an NGO has challenged this assumption at least in that area. (See table 27 above).
- Or is it low because such babies do not get registered by AWW?
- Is there any advantage to AWWs/ICDS by underreporting severe malnutrition? Basically the responsibility of taking adequate care falls on AWW and in tribal areas it may require admission in a hospital if the baby is sick.
- If severe malnutrition is really so low in ICDS population, the ICDS and AWWs must be commended for the efforts for years of good work.

Weight recordings

In Yavatmal, the researcher did not find any weight discrepancies in AW records. However in Nandurbar, two problems came up. The first is about the new scales used in AWWs. The new scale (standing scale) is rather inaccurate and may give an error of 300 grams either way. The old scales (hanging scales) were much more accurate and error-free. We could not know why it was abandoned.

The second problem, more serious, was revealed in the AW of Somaval settlement. Herein the AWW had actually overstated the weights of children, purposefully, to hide malnutrition. The table itself is tell-tale. The grade three and four leapt almost to threefold after repeat weighing. However, this problem may be peculiar to hilly tribal areas and its generalisation is unwarranted.

27. HOW GRADES CHANGED AFTER AN NGO REASSESSMENT IN AW

	Wt recorded was		Wt recorded Is		Differences	
	ICDS Gr3	ICDS Gr4	True Gr3	True Gr4	Diff-Gr3	Diff-Gr4
Village-ICDS						
Narmadanagar (Somaval)	4	4	47	10	43	6
Sardarnagar	6	0	7	3	1	3
Rewanagar	4	0	7	4	3	4
Rozwa	13	4	16	4	3	0
Total	27	8	77	21	50	13

Nutritional feeds in ICDS

The feeding in ICDS today is uniform all over the state. From various interviews and observations following points can be made:

- Khichdi (rice and Moong dal with some oil) is given for three days a week.
- Boiled green peas (Usal) with oil is given the other three days.
- The Laddoo (Protovita) is given to under one-yr. children and to those having grade 3 & 4 malnutrition. It is akin to Sukhadi of the bygone years.
- Oil is just about 2 gm/per child, which is very low.
- Children may demand more food after one round of serving, and this is given if available.
- Although feeds are given with standard measures of a server spoon, children may ask for more, and we saw that it is given if demanded.
- Cooking food in the AW is a tedious matter if kerosene is scarce. But freshly cooked food is more palatable for both mothers and children.
- Under-3 year children may also receive feed if they are able to come. But usually these babies are taken by parents to the workplace.
- Pregnant mothers and breastfeeding mothers may come for supplementary feeds, esp. in poor areas like Akkalkuwa and Dhadgaon.
- The feeds are supplementary, but they may be actually *substitution* for a home meal.
- The supplementary food is a good practice even for normal children. Apart from meeting body's nutritional needs, it is a joy and motivates children to attend AW. A tasteless meal could reduce their motivation to attend AW. Culturally inappropriate food, unacceptable cooking practice (boiling and not frying peas) and lack of oil, salt are deterrent factors.
- There is no community involvement in food preparation - at least they could supply of salt, oil and some spice.

28. NUTRITIONAL NORMS FOR SUPPLEMENTARY FEED IN ICDS

Recipients	Calories	Grams of Protein
Children 0- 6 Years	300	8-10
Adolescent Girls	500	20-25
Pregnant and nursing mothers	500	20-25
Malnourished Children*	600	20

In tribal areas, through the Navsanjeevan nucleus funds, children with severe malnutrition (and an added serious illness like ARI/diarrhoea) are admitted to either PHC or RH. The purpose is to treat the illness and avert death, rather than correct malnutrition. PHCs are not really equipped for this service, and even RH may be found wanting if it has no child specialist.

Malnutrition admissions in RH Mhasavad & Akkalkuwa

We observed the malnutrition admissions in rural hospitals at Mhasavad and Akkalkuwa. The figures in Akkalkuwa RH were not made available. However at Mhasavad we got some data.

- There were a total of 37 children in the malnutrition ward, some of them admitted in earlier months.
- Out of 37, 14 children's' parents have left against medical advice.
- Of the 37 children 15 are girls. Even in the AMA category only 5 girls have left. This means there is no bias against girls for these admissions.
- Of the 37 admissions 24 are grade IV and 13 are grade III.
- While the majority (16) are between 1-2 years of age others are equally divided. (Under 1 year, 2-3 years, more than 3 years)
- The medical officers at RH stated that the babies go back to the same conditions of malnutrition and poverty after discharge. However, medically the RH can only help by saving lives. The doctor at RH Mhasavad opined that the children gain about 1-2 Kg. weight during their stay. According to them one of the major reason behind malnutrition is the quick string of births and long periods of exclusive breast-feeding.

Story of a marasmic baby

This 12m baby boy, with both the parents living and the elder boy 4 year old and a sister is 30 months old is having marasmus (a syndrome of malnutrition). It was a home birth like the previous ones, by a TBA. Born in rainy season last year in rains; the first breast feeding was started after 3 days. The baby boy has barely 2 teeth showing on the lower jaw (normally expected at 6-7 months).

The boy has now fever and cough for 3 weeks before admission, which is already one month. The child is immunised. The Anterior Fontanel (the hollow on head where mothers massage oil) is wide open (normal closure by 18 m). Both parents go to work and the grandparents are at home. The mother is pregnant again for 7 months and does not breastfeed this child any more. The village (Ranipur) has a health subcenter and the family stays in the village, not on pada. At home they eat Corn/maize bhakri but the child does not take any top feed after the breastfeeding stopped. In the 2 weeks the child has gained weight from 5 kg to 5.9 kg thanks to feeding in the hospital (egg, oil, kanji-porridge, peanuts and jaggery). However the other children in the family also share the same feed and any kanji left is taken by the mother. The mother gets her meals from the hospital but the father has to fend for himself. It is indeed a difficult situation for the family. No wonder many families leave AMA and some just refuse admission.

IMMUNISATION OF CHILDREN

The routine immunisation prevents six child illnesses (BCG, Diphtheria, Pertussis or Whooping cough, Tetanus, Polio, and Measles) and Vitamin A has specific roles in blindness prevention, immunity against infections like pneumonia and diarrhoea.

29. IMMUNISATION DATA AS % ACHIEVEMENT

Indicator	N'bar	Y'mal	Jal.	Mah.
BCG	88	76	110	101
DPT 3rd dose	94	71	104	95
Measles	89	69	99	94
DPT-B	88	68	89	92
Diphtheria, Tetanus vaccine (DT)	103	93	106	90
Vitamin A 1st dose	89	69	89	89
Vitamin A 2nd dose	87	68	89	84
Vitamin A 3-5 doses (clubbed and divided by 3)	72	55	78	66
Iron folic acid given to children	68	41	68	64
ANC mothers Tetanus Toxoid	80	68	94	94
Ranking of districts by Imm. performance	13	15	22-33	

Immunisation targets are set by RCH Bureau/ DHO based on rural CBR of the state. The First year immunisation includes BCG, DPT-Polio (3 doses), measles and Vitamin A at 9 months. The last is the limiting factor for complete immunisation. Thus for the three districts, complete immunisation is 89%, 69%, 89% and 89% for the state. The Yavatmal figure is therefore weak, and probably due to non-reporting in the last MIS month.

In the second year, immunisation includes DPT and Polio booster, Vitamin A 2nd dose--all at 18 months. Jalna is ahead of Nandurbar and Yavatmal in this as for the first year.

In the third year, for DT immunisation the achievements are 103%, 93% and 106%, with Jalna ahead of the three and even the state average. Two doses of Vitamin A fall in this third year at 24 and 30 months.

In the three districts, Jalna has the best achievements. Surprisingly with a higher percentage achievement, Jalna takes a lower rank (22-33) and the Nandurbar and Yavatmal get better ranks at 13 and 15, which is probably a mistake in the ranking statement.

Five doses of Vitamin A

On the backdrop of good immunisation levels in rural Maharashtra, the Vitamin A protection starts dipping after the second dose, as the later doses do not fall in any immunisation timetable.

30. ROUTINE 5 DOSE SCHEDULE OF VITAMIN A

Vitamin A	Age of child in months	Concurrent event
1	9	Measles vaccine
2	18	DPT/Polio booster
3	24	
4	30	
5	36	ICDS entry
In tribal blocks, four additional doses are given at months 42,48, 54, and 60)		

The doses 3-5 are reported together. The following table gives Vitamin A coverage in Maharashtra (source MIS from RCH bureau for 2002-3)

31. COVERAGE OF VITAMIN A DOSES IN THE STATE OF MAHARASHTRA

Year (Measles & Triple coverage)	Vitamin A1 dose	Vitamin A2 dose	Vitamin A 3/4/5
98-99 (95.3% & 92.4%)	76.5%	67.9%	35.6%
99-2000 (95.5% & 90.1%)	82.7%	80.5%	43.1%

This decline of Vitamin A 3-4-5 doses to about half the A2 level is because there is no concurrent immunisation and because Vitamin A has not received as much independent attention by the health & ICDS dept. This despite the fact that Vitamin A is known to drastically reduce mortality due to ARI, diarrhoea, measles, and in general from all causes.

In ICDS, the AWW or the ANM gives some doses, but recording and reporting is not systematic. It is important to note that Vitamin A is a safe drug, but its overdose can cause side effects or even deaths like it did in Assam in 2001-2. Therefore there should be no double dose of Vitamin A within a month.

ONGOING INDEPENDENT HEALTH INTERVENTIONS & PROGRAMMES

Following ongoing special programmes to prevent child deaths were noted in various districts, but some are restricted to Nandurbar, being an UNICEF-UNFPA project district.

MCP sessions (Sarwangin Arogya Seva Satra)

Common to all the state The MCP sessions are extremely useful for the community. The timetable for the sessions is decided well in advance. It is a good example of co-ordination of ICDS and health dept.

ANM, MPW, supervisor, AWW/Balaktai carry out these sessions in each village. For the last 2 years most of the MCP sessions were held as per planned. The MO attends 4 MCP sessions. Venue for the session is Subcentre / Anganwadi. Following services are provided in this session.

1. Immunisation – BCG / DPT / OPV / Measles / Vitamin A / DT / TT – ANC, 10 yr., 16yr,
2. Anaemia Prophylaxis and T/t FS 100 / 200 mg
3. Antenatal check up Hb, Urine-albumin, Weight, BP, Height.
4. Malnutrition – weight record
5. PNC Check up

Action Research Programme on Child survival in Nandurbar

Action Research Programme (ARP) is operated by UNFPA in two tribal blocks of Nandurbar. This is based on SEARCH programme on preventing neonatal mortality. In ARP specific interventions are expected around child mortality (although UNFPA mandate is limited to RH --Reproductive Health; and not CH--child health). The programme is limited to subcenter village (5-6 villages in each PHC area) and the ANM gives the services. She is expected to strengthen all MCH services --ANC, Natal care, PNC with help of local TBA and AWW. The TBA+ AWW duo is expected to work together at birth and the AWW to take care of the newborn baby.

ARP has been started in Nandurbar just this year but the drug Gentamycin was not available for the first few months. In the interview with the PHN in charge of this programme, the main observation was that ANMs at the PHC village have started ARP and about 35 babies have been saved so far thanks to this intervention. She observed that actually all ANMs can do this but PHC-MOs are not very enthusiastic about ARP. The AWW is also not participating as there is no additional incentive for her.

Special treatment for malnourished children at RH & PHC

This programme is limited to Nandurbar under the Navsanjeevan Yojna and the funds come from nucleus budget of the Tribal development programme. Some observations:

- This life saving intervention is not very operative at PHC level on any serious scale. According to NGO Loksamanvaya at RH also it is not very regular.
- The number of Gr. III and IV children is several times higher than the indoor admissions actually made. A child is not admitted unless it has some current illness besides malnutrition.
- The baby's life is often saved but malnutrition part hardly changes, and whatever gains made in the Rural Hospital are lost as soon as the child returns to the village.
- There seem to be no protocols about this service. For instance what to do about treating suspect TB in the child is not certain.
- DAMA (Discharged against medical advice--absconding) is a usual problem.

UNICEF programmes

UNICEF, another UN agency based in Mumbai, is active in Nandurbar district and its special mandate is mothers and children. The overlap and the difference are not clear, even from the agency offices. It seems urgent to co-ordinate and integrate the efforts. UNICEF has a three-pronged programme: a) IEC at family and community level, b) health system inputs and c) Policy advocacy

Components of UNICEF intervention:

- Training of PHWs (pada health workers) on IEC skills.
- Family level IEC for nutrition improvement.
- Better immunisation and Vitamin A coverage.
- Efforts on ANC services improvement, and the ANC-RCH card is a visible factor in some blocks. (The colour card scheme).
- Ashramschoo--hygiene improvement.
- ICDS supervisor training for child nutrition and under 3 yr. component.
- Block co-ordinators posted by UNICEF.
- Proposed TMP training programme.
- Proposed Training of RH doctors.

Apparently, UNICEF has made substantial inputs in the district. According to an UNICEF officer, the PHW component is most important to effect services improvement and reaching families and communities.

Vitamin A Special drive in Nandurbar

This UNICEF intervention was undertaken in May 2003. The district-wide campaign for one month was aimed at increasing Vitamin A coverage to U5 children. This was because after the 18 m the booster dose of DPT accompanied by Vitamin A second dose, the Vitamin A doses are hardly given to all children in the routine universal immunisation programme. In urban areas there is no routine service for UIP and pvt. doctors hardly bother about Vitamin A doses. In tribal areas all 9 doses are expected to be given but report of only 3-5 doses is given that too is clubbed.

Although the May 2003 Vitamin A Special drive was not very notable, the one of the researches of this study had a chance to look at the Nov-December (2004) drive on Vitamin A wherein the coverage was extensive (about 80% of all eligible beneficiaries, and about 10% migration factor). The Abhiyan is a quiet but huge success in several respects. The Abhiyan has been operated with small UNICEF assistance of 3 lakh Rs, some personnel (block co-ordinators) to assist, but mainly through the health & ICDS infrastructure in rural and urban areas, without much disturbing the routine tasks. The author has recommended that the Abhiyan should find a place in the larger state programme twice every year, as it is eminently replicable.

The Warm box (WB)

In all the districts, the simple but useful *warm box* has arrived. This is meant for keeping/carrying the lbw/premature baby. The concept is a simple low cost intervention that can save many such babies, esp. if good FRU destinations are available.

However, repeated requests for a detailed document from the proponent of the warm box approach have met with no result. So we had to dwell on the status of the warm box as we observed in the field.

- The warm box is easily available--with TBAs, ANMs and this seems to be the main success of the project warm box.
- The WB is used for both keeping the lbw/premature baby at home and for carrying the baby to the hospital
- But where to refer the baby remains a question. No RH has NICU and probably the WB proponent holds that actual NICU is not necessary and a trained doctor is enough to take care.
- The proponent of warm box has probably recommended use of Oxygen and some antibiotics at the RH level for at risk saving babies but we could not ascertain any actual statistics on this matter.

In general, the WB seems a very idea at home and for carrying the baby to an RH. However, the overview of child survival factors in table 1 in the introductory section shows low evidence of its efficacy, although it is feasible.

Outdoor and indoor care for children

Children need medical care more often than adults do. The needs are partly shown by the mortality and illness statistics in the section of child mortality. Here are some actual MIS reports from Rural hospitals.

A Rural Hospital can serve as the backbone of secondary care in the health system, yet this is an underdeveloped system for last two decades. The team visited two RHs in each district for understanding the services.

Nandurbar: Indoor and outdoor services of RH Mhasavad (August 2003)

RH Mhasavad serves the entire Shahada block and is (strangely!) about 16 km away from the Shahada township. We visited the hospital in the afternoon and looked at indoor and outdoor registers, the wards and admission. Of the 131 admissions in the RH in August 2003 the major categories are: loose motions (59), fever (18) TL (16) childbirth (7); which make 101 cases in the total of 131. It is obvious that LSCS is not mentioned and is not done here. Even childbirths, expected to be high in August, are few.

The U5 IPD has 89% infective illnesses: boils, cough/fever, Diarrhoea & dysentery, fever, vomiting etc. Together Diarrhoea, fever and cough make about 78%. The U5 OPD is 55% boys and 45% girls. The daily numbers are about 20, boys to girls ratio being 11:9.

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Figures from Akkalkuwa RH are not available, as the MO was not inclined to give figures and requested us to contact the civil hospital for any figures. Later, when we visited the District Hospital, there was no one to give information on MIS on that afternoon.

32. YAVATMAL: SUMMARY OF IN-PATIENTS AT A RURAL HOSPITAL, YAVATMAL DISTRICT

	U5 Boys	U5 Girls	U5 Total	All In Patients
June	43	31	74	654
July	44	38	82	626
August	26	30	156	480
Total	113	99	212	1760
% of Total	53	47	100	
% of All IPD	6.4	5.6	12.0	100

Source: IPD Register of Ghatanji Rural Hospital

In Yavatmal, about 12 % admissions in the RH Ghatanji are paediatric. This is about the same proportion of U5 children (13%) in the general population.

THE OUTER CIRCLE: ANTECEDENTS OF CHILD MORTALITY

The outer circle--antecedents--includes factors such as economy, social forces, social services (Education, PDS, Health and FW) etc. However this study does not deal with socio-economic factors in the three districts beyond the profiles of each districts. The

The HDI statistics includes some social and economy indicators. The observations on EGS, PDS, migration, are scattered in the report and can not brought together. In case of Nandurbar a special study by TRTI brings together many of these things in the context of child mortality and so is given in the end of this section.

We will deal mainly with demographic issues, health infrastructure, family welfare and ethnic factors in this section.

AGE AT MARRIAGE AND CBR.

The data on age at marriage and CBR is from RRHS 1999 and hence about 6 years old. The Nandurbar data is actually Dhule data and hence current Nandurbar situation must be more adverse. The age of marriage, represented by percentage of *all* women married before 18 years of age is worst in Jalna (56%). The Yavatmal figure is less than Maharashtra, and hence Yavatmal data is not reliable (it is bound to worse than the state). The CBR for all the 3 districts is 25-26, which is higher than the state CBR of 21 and this is expected.

PUBLIC HEALTH INFRASTRUCTURE ISSUES

District hospitals

The Women's hospital in Jalna is an MCH hospital and stands apart from the district Hospital in Jalna. In Nandurbar the district hospital is in a makeshift place given by the municipal corporation. For RCH services, it is still not developed well. It will move into new premises under the MHSDP scheme. In Yavatmal, the district hospital is well established.

The Rural hospitals

The RH is intended to be the centre of secondary/referral health care, around which primary services will revolve. This is why RH is renamed as Community Health Centre (CHC). Each block has 1-2 CHCs serving about 1 lakh population each. Some RHs are taken in the World Bank funded MHSDP for upgrading as First Referral Unit (FRU). The project involves construction, equipment, training and user fees for non BPL users. However neither the original RH not the upgraded MHSDP FRUs are truly functional. Here is typical picture from Jalna.

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Visit to RH Bhokardan in Jalna

The hospital is serving 120 villages. The nearby RH Jafrabad has no indoor facility. The Rural hospital is a 30-bedded hospital having a staff of 26. 4 posts are vacant. The Post partum centre was recently closed down by the govt. Out of 7 posts of doctors only 3 post now remain for doctors. The Gynaecologist is not available. X ray machine and warmer are out of order. Ambulance is working but there is no driver. The Medical Superintendent is Paediatrician. There are almost 50 paediatric admissions per month. The Medical Superintendent had the following suggestions:

In Nandurbar no RH is under MHSDP, and most RHs are weak. The Mhasavad and Akkalkuwa Rural Hospitals are not EmOC prepared hospitals. Paediatric services are without NICU (neonatal intensive care unit). Akkalkuwa RH has a child specialist.

Rural hospitals are besieged with problems of staffing. The mandatory right 'mix' of specialities is gynaecologist, anaesthetist, paediatrician, and physician/surgeon. This is available at no RH in any district.

PHC and SC

In all these three districts, like in Maharashtra, the population: facility norms are completed. The 3000:1 SC and 30000:1 PHC norms are fulfilled.

EmOC at PHC

Staffing and vacancies

In both Jalna and Yavatmal, PHC /SC staff position is nearly complete, with very few vacancies. In Nandurbar, about 50% male MPW posts are vacant. The positions of doctors at PHC and PHUs are filled in all districts. Some MOs are BAMS (Ayurveda graduates) and some are MBBS (some of these are compulsory rural bond candidates). The 'bonded candidates' category has presented several problems: tenure only 9 m-12 months, inexperience, unwillingness to face the hardships of rural life, lack of administrative orientation, lack of commitment etc. On the other hand, BAMS doctors take the situation better but are not trained to use allopathic drugs and emergencies. However even they are also somewhat unwilling to stay in hilly tribal areas.

Access

In some places in Yavatmal and Nandurbar, access to PHC is a problem. In Nandurbar, the PHC we visited (Horafali) had no road as we walked the 7-km on foot. The Pradahnmantri Gramsadak road was done (spending about Rs 90 lakhs) last year and was completely washed out in one season. Many padas and villages do not have all season roads. Lack of good roads spoils all other efforts.

Health vehicles

Generally each PHC has a jeep but most of them are not working due to some reasons:

- Under Repair due to various reasons
- Scant budget (330-500 Rs per month) for both fuel and maintenance
- Driver not posted

For instance, in Jalna, 21 of the 38 PHC jeeps (also called ambulance) were grounded. So is the situation in all the districts. Often the jeep can be used only once a month.

PRIVATE HEALTH SERVICES

Private doctors and hospitals

In this study we could get to interview only some PMPs. Although ZPs are collecting data on PMPs and private hospitals, in no District Health Office we could get compiled data on private doctors and hospitals. The situation in the three districts is likely to be different in some respect. However we can make some general observations:

- Pvt. hospitals are mainly in cities and towns, not much into the hinterland.
- The paying capacity in Tribal areas is very limited and therefore Pvt. hospitals are scant in such areas, while they are found in better off areas like Shahada in Nandurbar, Pusad in Yavatmal or Ambad in Jalna.
- However we find private doctors (generally not MBBS) in tribal towns like Akkalkuwa. Some of them have small nursing homes.
- The quality of care, esp. in obstetric care, is greatly variable. EmOC may not be available in many of them and so is paediatric care.
- The charges vary according to area and qualification.
- Since Govt FRUs are not functioning properly, many pvt. hospitals thrive at their cost. The Mhasavad RH in Nandurbar is a case in example, wherein even nurses and Govt doctors refer women to a Pvt Shahada hospital. Some kind of favour to the staff in return is not impossible in this arrangement.

A typical PMP in rural area is BAMS, BHMS, DHMS, BEMS or any other degree but rarely MBBS. How they work will be evident from one of the interviews with a PMP in Nandurbar (see annexure)

Visit to a Pharmacy Shop in Jalna district

We visited a pharmacy shop at village Bharaj. It was the only shop in that area. It sells about 175 to 200 antibiotic syrups each month. Amoxycillin and Erythromycin are antibiotics of choice for child patients. The cough syrup is dispensed on demand. Minimum cost of antibiotic syrup is 20 Rs. More than 40 % prescriptions are for children.

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TRADITIONAL HEALERS IN NANDURBAR

In tribal areas, esp. hilly areas, there are still many traditional healers and often there is no one else at the pada. In such areas, the first contact care/consultation is often by the TMP. UNICEF Nandurbar unit has obtained some data on TMPs in some blocks.

33. TRADITIONAL MEDICAL PRACTITIONERS IN THREE TRIBAL BLOCKS OF NANDURBAR

Block	PHC area	TMPs
Akkalkuwa	Dab	30
	Horafali	10
	Molgi	46
	Jamana	62
Dhadgaon	Mandavi	36
Taloda	Pratappur	35
Total		219

TMPs may attend to general ailments (fever, stomach-ache) or specific problems (like dabba-pneumonia). The recording of their practices and deciding on the value of each practice is a separate exercise. The point here is that they exist, and people use their services more than modern system, and it is necessary to take a cognisance of their existence while planning for health care management in such blocks.

FAMILY WELFARE (RCH) PROGRAMME

Family welfare is no doubt an important factor deciding child mortality, but it operates through some proximate factors like LBW and malnutrition. The number of children (and lack of spacing of births) does not directly mean more child deaths, hence we have taken FW in the outer circle of antecedents.

34. MIS 2003: PROFILE OF FW PERFORMANCE

<i>Family Welfare (% achievements against targets)</i>					
Sterilisation % against target		90	88	87	89
% of Sterilisation after 2 children		77	79	91	86
Copper T insertion		91	92	91	86
Oral pill users		7	85	80	89
Condom users (numbers)		70	13451	7706	396858

The achievements in the three districts in FW programme:

The targets still continue despite a target free approach, perhaps under the garb of Community need assessment. The districts are probably asked to calculate targets based on vital rates and the RCH bureau therefore is able to produce figures of ELA (expected level of

achievement) and achievements. Given this situation the districts have performed in 2002-3 as given in the table below.

In sterilisation, Nandurbar leads this group and is even above the State average. Yavatmal is closer to Nandurbar and then comes Jalna. These achievements should be juxtaposed to the multiparity profile of mothers giving childbirth in that year. This is not available from the State report but can be obtained from individual districts. For instance, in Nandurbar in August 2003, among mothers giving childbirth, more than 40% had 3+ children (the current birth included).

The proportion of Non scalpel Vasectomy (NSV) is picking up in Nandurbar and leads in the state, however it is not possible to talk of quality of users as some may have had the wife sterilised already, and the attraction is the high reward that continues despite talk of no-incentive. But the acceptance of NSV by the male community is welcome sign indeed.

In calculation of targets, perhaps the birth rate of the State is used rather than the district. This makes true comparison difficult. For instance CBR for Nandurbar is 27+ while that of the state 21. Hence the target may be underestimated. So could be the case for Jalna and Yavatmal.

In tribal families, large family size is still common for reasons that are too well known.

Order of births

Family welfare, affects mother and child survival in several ways. The General picture of weak birth spacing factor of Maharashtra persists in the three districts as well, and a little more sharply in Nandurbar. The general trend in the state is to have quick births and adopt a terminal method-sterilisation. Let us see districts pictures.

35. ORDER OF BIRTHS IN MIS NANDURBAR

Order of births	12332	100.0
1	3535	28.7
2	3362	27.3
3+	5435	44.1
Total	12332	100.0

From the Nandurbar MIS of August 2003, 44% of mothers delivered are already having 2 or more babies/childbirths. (Technically called 3rd + para mother). More than 4th para childbirths are risky because there are more chances of uterus problems like failure of pains, retained placenta causing after bleed etc. Technically they are grouped as high-risk childbirths but that does not constitute a matter for referral to FRU or pvt. hospital. Most families and TBAs/ANMs take it as normal matter in these areas. Multipara childbirths, at 44%. Are common events in backward districts.

ETHNIC FACTORS

- Both Nandurbar and Yavatmal have tribal (ST) population. Nandurbar has mainly Bhil and Pavra tribes spread over the entire district, but esp. concentrated in four blocks--Akklakuwa, Dhadgaon, Taloda and Navapur. Most of the community is poor and whatever development has occurred is only recent. Migration for 6-8 months is common among tribal communities. Some of them migrate within the district and some into Gujarat for sugarcane harvesting. The push factors of migration operate both in plains and hills.
- In Yavatmal, the tribal population is Banjara² and Kolam, the latter is backward while some of the Banjara community is well developed and often powerful (has had two chief ministers of Maharashtra). The Kolam, a primitive tribe is not only backward, but many of the habitations were reportedly undergoing starvation in this year of draught.
- Each tribe has its own culture and health influencing factors. The education factor is also developed differentially. In Bhils and Pavara, agriculture is comparatively new while Banjaras are established farmers in Yavatmal. There are, no doubt, backward Banjaras living on tandas (nomad-settlements) that can be inaccessible. The ethnic factors affecting health need a greater study in depth.
- **Squatting Birth:** Women in many tribes take childbirth in squatting position, may be except Pavra. Other castes (marathas mainly) take it in lying down position, thanks to influence of nurses and doctors. The squatting birth hastens and eases birth but may cause birth canal injuries to the mother. There is evidence that squatting birth reduces stillbirth rate (Junnarkar and Joshi,). Strangely the TBA training done by Govt health system blindly follows lying down position and thus there is a mismatch between training and practice.
- **Breast feeding:** The thick milk in first 2-3 days is widely disdained by mothers and families, causing delay in early breast feeding--leading to hypoglycaemia (low blood sugar level) and reduced immunity to infections and thus causing both morbidity and mortality. This is slowly improving in some places.
- **Early baby bath:** This harms by way of reducing body heat of the baby (that it is warm bath is no matter) in the critical early hours of birth. This custom goes with the ideas of purity in our cultures. This has been difficult to change.
- **Starving the mother before and after birth:** It is common to underfeed the pregnant mother to keep her slim and restrict baby-weight and size, to facilitate birth process. It is widely held that a big baby may have a difficult birth and so harm the mother. This is not entirely

² *Banjara is not a tribe strictly speaking in Maharashtra as it has been denotified. However, it is considered so in Andhra Pradesh. However, here it is mentioned as a tribe due to its ethnic distinction in dress, customs and lifestyles than other communities in Yavatmal.*

incorrect and given the poor referral services, families can not be advised against it with conviction. However, why the mother is starved for 3 days even after birth is difficult to understand. It may harm the baby and the mother in several ways--reducing immunity against infections and by slowing postnatal recovery.

- **Faith healers and herbalists:** Common in every tribe, they are often the sole help in hilly places. The community heavily banks on them for life support and their advice is held high in matters of illness and healing. In Nandurbar, UNICEF has prepared blockwise lists of traditional healers in Nandurbar. Reorienting them to child health priorities and protocols will be helpful.

SPECIAL STUDIES

The TRTI report on Nandurbar

This study, done by TRTI Pune in 2001, pointedly puts the blame on all the depts of GOM for child deaths. The TRTI team studies 136 deaths from 9 villages in 2001. The report has following points to make:

- 75% of siblings of deceased children (U6) had malnutrition, which means that malnutrition was a predisposing cause for 75% child deaths.
- The ascribed cause of death is always confused by the agencies, *to suit individual depts. If it is disease related, it absolves other depts to indict the health dept. malnutrition is an inconvenient cause as it equally blames other depts and schemes (PDS-revenue, forest, ICDS, tribal development etc)*
- The health dept failed to report 57% of child deaths. Surprisingly the 6 out of 9 villages are not remote villages. *Thus there is a purposeful non-reporting of child deaths.*
- 72% of the families had little or no land of their own.
- 78% of the families had a food deficit for over six months (*starvation*)
- EGS is not answering the needs of tribal people here
- 45% of the mothers of the deceased children had no ANC check up and 20% had not even TT doses.
- 21% of the mothers of the deceased children had no nutritional supplement from ICDS.
- 99% of the deceased children were born at home
- 35% of the families of the deceased children were not visited by PHC staff after death.

Suggestions of the TRTI report

- Agricultural rehabilitation--on irrigated land, at least one acre per family.
- Resettlement package for project affected people.
- Redistribution of degraded forest land to tribal families for livestock production.
- Irrigation schemes with small dams.
- safe and gravity powered water supply.
- Employment, better EGS.
- Mobile clinics.
- Pada workers for whole year.
- Staff incentives in tribal areas.
- Improve PHC facilities.
- Monitoring and evaluation to be independent agencies and not by the implementing agencies.
- Credit supply.
- Comparative study of deaths in malnourished children without malnutrition.
- Participatory approach, with help of users of the scheme.

DISCUSSION

This section makes some general and some specific comments in the light of observations made in the earlier part of this volume. We have not followed here the circles approach. Some comments have been made along with observations, and so we are skipping them here for sake of brevity.

THE DISTRICT FACT SHEET (HDI AND RRHS)

The HDI 2001 actually uses old data in many respects and therefore the HDI findings need to be used with caution.

- Safe water supply was an unreliable data, quality/safety was not counted. Access factor does not appear.
- Despite favorable literacy rates (except for married women), age at marriage and TFR, safe birth, the IMR and U5MR for Yavatmal seems to be high. This cannot be explained.
- HDI reports 1991 figures for child mortality which were high. Current mortality from DSO data has declined in all three districts. IMR has also dropped --Nandurbar from 73 to 53, Yavatmal from 124 to 38 and Jalna from 76 to 35. The original high of Yavatmal was an enigma.
- U5MR has also declined-- in Nandurbar from 28 to 14, and in Yavatmal from 19 to 4.
- Coverage of ANC visit from RRHS were 35% (Nandurbar), 47% (Yavatmal) and 17% (Jalna), all of which were low, and Jalna lower still.
- Proportion of *No ANC visit* was high, 30 & 23% in Jalna and Nandurbar. Proportion of NO ANC in Yavatmal was low --8%.
- Safe birth proportion was low and lower still in Jalna.
- Institutional birth proportions in pvt hospitals vary--Nandurbar 45% and Yavatmal 34% and Jalna 60%. First two districts have fewer Pvt hospitals (though we do not have figures for Pvt institutions).
- Break-up of home births showed that Nandurbar (30%) and Yavatmal (38%)--had low proportion of Tr TBA services, and in Jalna it was just 9%. In Jalna 82% home births were conducted by untrained TBAs. In Nandurbar and Yavatmal it was 58% and 55%. These figures were proof that birthing services were poor. This huge gap in training seems to have narrowed in the period 1999-2003, thanks to training of TBAs in all districts.
- PNC visits in the first 15 days were scant (20 to 37%).
- Mothers seeking PNC care mainly go to/ call the PMPs (64-75%)

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- Proportion of 'new-born weight taking' in 2 days was less in all 3 districts (18-37%).
- LBW (<2500) percentage 7%, 42%, 3% were widely variable figures suggesting either methodological variation, coverage differences or systemic bias in some district.
- Population per Dispensary in Jalna was very high and therefore doubtful.
- Complete immunisation was lower than state figure in all the 3 districts, particularly in Nandurbar. Even State average was low (80%) than the desired 90%.
- Proportion of colostrum-feeding was low, commensurate with paucity of trained birth attendance.

HDI: Then (1991) and now (2002-3)

HDI 2002-3 has used mostly decade old data from the last census. Though 2001 census data is not available, some new sources like NFHS and MIS are available for comparison of some factors. There seems to be substantial positive change from the HDI figures to the current MIS information in several indicators regarding RCH (see table 2 and 11). Apart from this general comment, we need to look at what has been left to be covered and how we can go about it. However the lack of reliable and recent data on mortality should caution us about the statistical comments.

WHY CAN'T MAHARASHTRA DO IT IF KERALA COULD REDUCE IMR?

Kerala and Goa are two states with lowest infant/child mortality. Kerala is quoted too often in national and international literature. The states like AP, Tamilnadu and Karnataka are also on the Kerala track. Fundamentally, what is the Kerala phenomenon on low IMR (13%)

Following factors are notable:

- High literacy, esp. women's literacy and education
- Better status for women rooted in matriarchal tradition
- Falling birth rates, spacing of births despite religious prescriptions against it (Christian and Muslim population, believed to be against birth control, make 60% of Kerala population).
- Better network of health services--both public and private, with high hospital-birth rates.

What is not mentioned as often is:

- Extensive road network connecting hilly and plain areas, narrow strip of land making access to coastal centers quick and easy.
- Money order economy and remittances from Gulf
- Access to private hospitals, and the ability to pay for it.
- Role of available local food: fish, coconut and coconut oil and the cultural practices.

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Therefore to quote Kerala when discussing such backward districts is not an appropriate thing.

CHILD MORTALITY : PERSPECTIVE ISSUES

36. FACTORS AND SECTORS IN THE CONTEXT OF CHILD MORTALITY

Factors and subfactors						Sector
Socio Economic factors	Rural-Urban	SC/ST	Land rights	Employment	Migration/displacement	ECONOMY
	Roads	Electricity	Irrigation	Markets	Credit	SOCIAL SECTOR
	Literacy	Education	Culture	Son-preference	Food habits	
	PDS/Grain banks	Relief schemes	Media	Women's participation		
Water-sanitation-environment	Safe drinking water	Safe excreta disposal and toilet practices	Injury prevention			ENVIRONMENT/ drinking water/ sanitation
Forest	Forest cover	Forest rights	EGS by DFO	Corruption by forest dept		
Govt Health Services	PHC/SC services	RH	District Hospital	MIS	National H programmes	HEALTH SECTOR MANAGEMENT
Pvt. Health Services	PMP-GPs	Specialties	Costs	Quality	Access	
Women's health	Adolescent health	Nutrition-weight/Anaemia	Age-Marriage	Status in family	RTI-STI services	REPRODUCTIVE HEALTH CARE
FW	Spacing services	Family size/parity	Abortion services	Fertility services	Male participation	
ANC	Coverage	Risk management	Referral	EmOC	Birth-weight/tobacco/alcohol	
Birthing services	Home births	TBA skills	Risk detection	Transport	EmOC	CHILD CARE
Neonatal care	Warmth-Warm-box/ bag	Breastfeeding	Infection Management	Home remedies		
Infant care	6 Month-Exclusive Breastfeeding	Weaning and proper feeding	ARI treatment	Diarrhoea-Management	Immunisation	
	Commercial milk formulae	Vitamin A doses				
1-5Yr child	Feeding/immunisation	ARI-care	Diarrhoea-Management	ICDS-feeds/check-up	Special programmes	
Other Biomedical interventions	Squatting birth	Salt-on-cord	oil basti/ oil massage	Balghuti-home remedies	Childhood TB/ primary complex	
	Antibiotics for delayed labour/leak	DIYA (see Yavatmal report)				

Child mortality is a complex multifactorial issue in human development, however it is possible to see it as narrow programmatic issue and design interventions. We have presented the various factors--antecedents and determinants-- in the context of these districts in table 36. This

broad clubbing in the last column of the matrix table given above suggests the department that is/to be involved. Unless this broad perspective is internalised, we might end up suggesting narrow and vertical interventions specific to child mortality. That will make us miss the forest for a tree, which is not the aim of HDI exercise.

IS CHILD MORTALITY IN THE THREE DISTRICTS HIGH?

From the official statistics (Jeevandar surveys by DSOs) and from available MIS data from DHOs, the IMR for the 3 districts is between 40-53 and U5MR between 4-14. On the background of the dismal picture posed by HDI figures (1991), current IMR and U5MR of the three districts are not so alarmingly high at least from the DSO reports. They are on par with other districts and the state, except some blocks like Dhadgaon and Akkalkuwa where both rates are high. But it is better to keep in mind that underreporting of child deaths is a known thing in all districts. Let us record some evidence on this.

Is child mortality actually higher than is shown by official statistics?

In tribal areas at least, there is evidence that more children die than are reported by health dept in their service data. In addition, the huge migration by tribal families in Nandurbar to Gujarat for 5-6 months hides several deaths from district statistics. If deaths-during-migration are counted, the IMR U5MR may actually shoot up. Loksamanvaya report (Loksamanvaya,) and the TRTI report (TRTI) suggest a substantial underreporting of child deaths in the health service data (ANM records) in Nandurbar region. In the tribal blocks at least a correction factor of +50% may be necessary to get true estimates.

However the same logic can not be extended to non-tribal areas. This is substantiated by the Tirthpuri study in Jalna. So the statistical impact of child deaths in the difficult tribal blocks on the entire district may be marginal and not manifold.

In Jalna births and deaths of children of the Lekmata (a daughter who has come back to her parental home for the first childbirth, as is the custom in Maharashtra) are usually not registered by the ANM/staff. (But the birth/stillbirth must be getting registered by the Grampanchayat). So these young primi-mothers are missing from the district health data. These babies have higher mortality according to NFHS-2 (NFHS, 1999). This Lekmata factor may underestimate *both* the child birth and deaths by 20-25% but the *rate* (IMR) need not be affected greatly since the denominator also is smaller.

Another factor causing low reporting could be vacant staff positions (ANMs and MPW male) in some subcenters. In this case, additional charge is given to some one but the reporting of births and deaths may suffer.

After the SEARCH report (Bang et al, 2001) and their campaign earlier has resulted in GOM taking cognisance of the underreporting factor and District Magistrates are supposed to review child deaths. There are village committees too, but they hardly meet to work.

However, it must be borne in mind that GOM claims its IMR on the basis of SRS for individual districts rather than the health service data. The Grampanchayat vital data for the state is not available early enough and the vital registration also takes 2-3 years to get compiled even in the age of computers and Internet; and this needs attention. Secondly, it is grossly underreported as many Grampanchayats do not file their reports.

The DSO data in some districts may be reliable, while in others it is poor. This system is yet to develop fully and can not be very reliable.

It will be therefore safe to state that in health data especially births/child deaths in tribal areas are underreported by a factor of 50% or so. The deaths in other areas may be underreported by a factor of 20-25%. However if this underreporting changes the *rates* is a matter for consideration unless there is selective deliberate suppression of child deaths only.

IS IT POSSIBLE TO REDUCE IMR FURTHER BEFORE ANTECEDENT MANAGEMENT?

The NMR component of the IMR remains high as ever--more than 30% (Mathers CD et al). Several reports (Gareth J., 2003) restate this fact and the simple interventions for combating NMR (MoH&FW, 2003) are also proven and available; but not delivered by the wider public health system. What are these interventions?

For avoiding neonatal deaths
Safe birth and proper referral of risk cases, taking care of birth asphyxia factor
Five cleans while home birthing, throat suction of the neonate, to reduce infection and deaths.
Keeping the baby warm by quick wrapping and mother's closeness (Kangaroo care) and avoiding bath for five days. (heat is lost due to evaporation from the wet skin, and exposure to air)
Early breast-feeding to avoid hypoglycaemia and gut infections.
Gentamycin injections in case of neonatal sepsis.
In case of ARI, simple treatment with cotrimoxazole has been developed and is part of UNICEF strategy for long.

IF these techniques are widely practised for all births, NMR may reduce substantially despite poor development on other fronts.

- The Stillbirth factor is a 'dumping ground or waste basket' for neonatal deaths in rural health services and is evident in the districts studied; even this factor will reduce after proper home births. *Now the question is just why this child survival revolution does not happen on the wider scale?* The answers lie in:
- TBAs are not properly trained for risk detection and have little health-system support and over 60% births take place at homes. The GOI was in two minds about

encouraging TBAs and vehement about institutional birth (plus our *referral-institutions* are hollow).

- Referral is a major decision for the TBA and the family and often there is neither money nor easy transport available in the situation (The month of August has highest births and is the *Janmastami* month of rains and gushing streams, and also power failure *Amavasyas* and bad roads).
- The custom of Baby bath is connected to the concept of purity and mother's fluids are considered *amangal/vital* and so baby-bath is a common custom.
- Early breast-feeding is detested as the thick yellow milk is considered *dushta* in the traditional healing systems. Now this is changing. Ayurveda has ruled against breast-feeding till the milk drop from breast sinks and dissolves in water; the colostrum is thicker and proteinous and takes time to dissolve in water. This notion--whether originally traditional or Ayurvedic can not be said--is widespread as a *nishedha* (injunction).
- There is no village based health worker to take care of Gentamycin injections or ARI (after the sad demise of the CHW scheme, who could have developed into a first contact care worker).

However child mortality is a quantitative statement on development and not an end in itself. Needless to say that child mortality is important too but it depends upon social development to a large extent. Therefore the action also has to be social-developmental (including economy).

Some of the problems are cultural and need consistent IEC and TBA training for positive change. Other problems are linked to infrastructure --lack of health workers, poor roads, and still others are linked to poverty--can not afford transport or hospital costs (direct or indirect costs). HDI Maharashtra puts the average IPD cost at Rs 3089.00 for rural areas (HDR, 2002)

However the major problem is still with the GOI mindset of neglecting TBAs and not activating RH and the GOM has concurrent responsibility. So there is neither good primary care nor referral Rural hospital to talk of. Much of the neglect of TBA is because of international experts denouncing TBAs to uphold the role of institutions for safe birth, mainly Deborrah Maine's report (Maine D.,) stating that TBAs are not cost effective for averting maternal deaths and institutional care is better in this respect. International funding for RCH therefore influences the *domestic* decisions.

CAN WE NOT REPLICATE NGO INTERVENTIONS IN CHILD MORTALITY

CRHP Jamkhed (Arole R., 2003) and SEARCH (Kovali Pangal and other reports by SEARCH) Gadchiroli have done independent interventions on child mortality and have shown

commendable results. The CRHP intervention combines development and better birth management by TBAs, supported by a referral hospital of the CRHP. The SEARCH experiment is about biomedical interventions-better perinatal management, management of neonatal sepsis and ARI treatment etc. The NGO has developed a training programme for *barefoot neonatologist* based on the SEARCH experience. GOI and GOM have taken note of the SEARCH model, though there was much debate on the model after SEARCH made a media campaign on the issue of child deaths. This has resulted in GOM taking some measures like instructing district magistrates to record births and deaths properly and in some blocks take the model for field testing (in Chandrapur and Nandurbar).

But there are some points to consider before anyone asks for a general programme on NMR in the state:

37. CHILD MORTALITY INTERVENTIONS AND SUGGESTIONS

SEARCH model implies	Govt's problems/ Stated reasons	Suggestion
Uses TBA for good ANC , Natal and PNC management, paying Rs 300 for each birth.	Govt only 'trains' the TBA, provides DDK and then gives up at that. GOM is against paying any money to TBAs any more (they used to pay Rs 10 per birth sometime back). In RCH II this might change for some backward states (Will Maharashtra be in it is another question)	The money required is not huge. Even if all TBA assisted home births in the state were to be paid Rs 200 per case, the total cost each year is ³ 12 crore. Criteria for payment can be developed, so that risk referral is protected and provided. In tribal areas GOM can use part of Matrutva Anudaan Yojna for this. Stop the medicine purchase of 300 Rs and divert it for TBA support. Anyway the medicines are wasteful and needless duplication of RCH supplied medicines.
Uses trained health workers for giving Gentamycin injections to babies having neonatal sepsis. Also ARI management	Govt has two problems--the ANM has to look after 5-6 villages and be on move for that. There is no health worker for each village. TBAs/ AWWs can not be asked to give injections to neonates	The roaming ANM service is a real hamstring in the system. No answer at this stage on this. PHWs can be trained in tribal areas in future and even AWWs. (But what happens in non-tribal non-ICDS areas?) ⁴ Some lateral thinking is necessary for alternatives to injections, that even AWWs can undertake safely.

FIXING RESPONSIBILITY OF CHILD DEATHS?

³ At CBR 20, 100 million pop will have 20 lakh births, only 50% are born at home and about 30% done by trained TBAs, which is 6 lakhs. At 200 Rs each birth, tat is 12 crores every year. UNFPA alone pumps in 24 crores each year on IPD project. UNICEF is another agency and WB yet another. It is possible to mobilize such funds for Maharashtra's health dept for such an important task. It can even develop a modernized TBA programme with this support.

⁴ The Team studying this problem has already proposed a scheme for OMNIBUS village health workers and the 10th FYP has included this for the state. However GOM has not acted on this after that. Now that CHW programme is officially discontinued by GOI-GOM, it is possible to review the failure and fill the space with a better programme. But is GOM Health dept 'once bitten twice shy' or simply listless about rural hardships?

Govt yes; but which Govt--GOI or GOM, district or local, this dept or that one? The GOI mistake of neglecting TBAs with a half hearted programme to prefer non-existent FRUs has cost dearly to the RCH programme and hopefully RCH2 will make amends. Another folly of the GOI Nirmaan Bhavan is to wipe out the CHV/CHW programme throughout India, including Maharashtra. the ministry of Health and Family Welfare (MOHFW) is answerable for this abject surrendering of national priorities to international recommendations. This, more than the ANM, is the root cause of neglecting childbirths in the villages.

At the level of State Govt there is a Ping-Pong going on child deaths among various depts. While *fixing responsibility* on a dept following sequence of inquiry is recommended:

38. SECTORAL PROBLEMS IN CHILD MORTALITY

Level of deprivation	Prevalent problems	Dept
Economic	Starvation, lack of wage labour, crop failure/destruction,	Agricultural inputs, irrigation, Public works EGS, monopoly procurement in tribal area, Tribal development, Forest dept
Food shortages	Irregular availability in PDS shops, rates, poor uptake of PDS	PDS-revenue,
Child nutrition at family and ICDS	feeding practices, lack of food in families, Nobody at home or migration	ICDS and local economy
Health care	Poor ANC and childbirth services, stillbirths, neonatal deaths, infant deaths, ARI, expensive medical care	Health services-Govt

Thus in most child deaths all depts have variable role. For instance a seemingly medical event of 'stillbirth' is often due to poor medical-birthing services, but also has infrastructure and economy at fault. The full account of child deaths, corruption in public works, failure of EGS is available in the TRTI reports. The SEARCH report also bares this long chain of causes in its report *Kovali Pangal* .

ROLE OF SPECIAL PROGRAMMES

On the background of this discussion, we can understand the role of special programmes.

In itself child mortality is a tragic issue and some special efforts are necessary rather than wait for general improvement, keeping in mind the limitations of such an intervention. ICDS was started with such an idea and now there are other programmes like ARP and UNICEF interventions on child health and survival.

But the case for improvement of services for all people is stronger than child issues alone. For instance a *RCH package* is a better option than *child survival* alone. Similarly *Primary Health care* for all is a better option than just RCH. It is better to try and improve comprehensive services than act on narrower issues. Health policy experts insist that 'vertical' programmes be discouraged and that the agenda should be comprehensive health care.

Infrastructure for special programmes also comes from general health services; hence it is rational to work on health system/sector improvement than narrow and indicator-based interventions.

Some more scheme or more of the same schemes?

Existing schemes, including ARP, are conceptually NOT sufficient, since there are three specific problems:

- Making SC a population (3000-5000) based facility rather than a village based service disables the ANM for birthing services.
- The confusion on safe birth (and TBA) for preventing child mortality.
- Lack of village based health workers (now only seasonal in tribal areas), after the closure of the CHW scheme.

In tribal areas faithful and systematic implementation of the existing schemes and systems (Bryce J., 2003) from PHWs, TBA, AWWs to ANMs and to PHC/RH will give results. whatever system is in place, we need to make it work. Even if we want to rope in NGO help, it should be on these specific foci on the chain.

A subsequent section deals with short term, mid term and long term reforms in the health system to answer not only RCH needs but also general health care needs of people.

THE CONFUSION ON HOME VS INSTITUTIONAL BIRTHS

In the last decade, there is an *international agency drift* towards institutional birth and away from home births. There is a tacit disapproval of home births and TBAs and the argument is that home births can not take care of IMR and NMR and morbidity. For sake of clarity, birth safety can be looked at in the following situations:

1. Home birth with untrained TBA
2. Home birth with trained TBA
3. Home birth with skilled person-ANM, doctor etc
4. Institutional birth (at village birthing room, SC, PHC
5. Institutional birth (RH, Private hospital)

Institutional birth-hospital birth--is the best option according to UN and other international agencies. However UNICEF and UNFPA have somewhat pragmatic lines, the latter is uneasy about home births. In a state where more than 50% of total births take place in home we need some better answers than this approach.

It is not true that institutional birth is the best option. If risk selection is proper, and if medical help is accessible if needed, *home births are actually better* than institutional births and many families even in developed countries prefer so (Olsen). The reasons stated are:

- Less infection from other patients
- Home comforts and better family support
- Less costs
- Less risk from interventions

The skilled birth attendant (SBA)

In its attempt to aim higher may be, WHO (WHO SEARO, 2002) has recommended 'skilled attendant' and by definition of a skilled attendant is one who:

- A) Can give supervision in pregnancy, labour and postpartum period, risk-detection and necessary referral and provide emergency measures if necessary
- B) May practice at hospitals, clinics or any service setting (and not home!), even a village birth room.
- C) Has acquired a formal legal status to practice childbirth.

The WHO further appeals to make such skilled attendance available to at least 40% of the births in difficult areas. Thus, not realising what it means for difficult parts of India, if WHO has its way the TBA will be a dying institution now. So also, the home birth is discouraged in favour of institutional birth. Home birth has socio-economic context, which has remained largely unchanged in large pockets of India.

The WHO is just short of saying that the NM is the minimum qualification for being an SBA (even ANM is suboptimal and may be phased out by the Nursing Council).

The SBA is WHO's (and GOI's) answer for TBA's crude skills of childbirthing. The fact remains that SBA does not come free of cost like the TBA and investment is necessary on both institutions and training and salaries. Without such provisions the SBA argument will be an empty rhetoric.

The alternative national and international positions on Home birth

Home birth has been nearly replaced by the Hospital birth in developed parts of the world. Childbirth is now a medical event due to small percentage of births experiencing complications. This has its own problems and the 'normal delivery' will have to be fiercely protected.

And it is not all dark on the home birth front. Several studies suggest that an outcome for a well-selected (low risk) pregnancy-birth may be same or better in non-hospital situation. Let us look at some evidence.

1. Peter F Schlenzka from Stanford University has studied 816000 birth cohorts from 1989-90 birth records (Schlenzka P. , 1999). The medicalization of childbirth and the move from home

to hospital may not have improved the outcome of low risk pregnancy (submission by Susan Mead in the same report). The study further states that " Given no differences in perinatal mortality it must be noted that the natural approach shows significant advantages with respect to lower maternity care cost as well as reduced mortality and morbidity from unnecessary Caesarean section and other obstetric interventions, and significant benefits from avoiding negative long term consequences from unnecessary obstetric interventions and procedures.

2. A recent meta analysis of *planned home birth vs planned hospital birth* studies published after 1970 found six studies (Australia, Netherlands, Switzerland, US) which met the selection criteria. The report concludes that perinatal mortality was not significantly different in the home and hospital groups. (quoted from Olsen 1997)
3. CRHP Jamkhed in Ahmednagar district has done significant work on health and development since 1970s. With help of trained TBAs doing home-birthing and a good referral support, CRHP has an IMR of 23. (Arole R., 2004)
4. In a Canada-based study of 1001 women opting for home births, 16.5% needed referral to hospital during birth or post partum reason. Of referred, 91 (53%) had normal delivery and others needed forceps or C-section (Tyson H ,). Thus 83% had a safe home delivery.

There is no reason or intention to confuse western data of home birth outcomes with Indian settings where access and a skilled attendant are difficult to get, in addition to the fact that anaemia and lack of ANC makes things complicated. However the wholesale abandoning of TBA help and home birth because of WHO directives is both unwarranted and impractical. The crucial questions are: how to improve a) high risk-referral of mothers and b) How to improve TBA skills. It is important to note that ANMs are not staying at SCs due to several reasons in several states and before tackling the ground reasons for this, it is unwise to talk of skilled attendants and institutional births (Mavalankar D.,).

SAFE BIRTHING IN THE PROPOSED RCH 2

The ongoing renewal of RCH programme as RCH II, slated to come in 2004, has taken some steps. Of specific importance in JSY (Janani SwasthyaSahay Yojna) are following points (part of Draft sent to the author by Chetna Amdavad for comments and feedback):

- Making all PHCs work 24 hours for childbirth services
- Making Gynaecologist's services available at all Rural hospitals
- Dai-ma (TBA) training and support (75-100-150 Rs) for childbirth in selecte states known for poor RCH profile.
- Involving TBAs in ANC by links with ANM

- Empowering ANMs with funds for helping TBAs and mothers
- Child-survival to be strengthened even in home birth.
- Promoting institutional birth by incentives for mothers and transport assistance for accessing hospitals.
- Rewarding TBAs and mothers more for bearing a girl child than a boy-child.

This seems to be a pragmatic approach but needs lot of action to support each intention. The selection of states for Dai-ma support however needs reconsideration. It is better to select districts or blocks rather than states since some districts like the three chosen here may be worse than some in Bihar or MP.

Issues for better home birth

The crucial issues for home birth are: proper screening for risk, hospital care accessible if necessary, and a skilled attendance (not necessarily NM). These fulfilled, home births can be an option for some time to come. There is also meta-analysis support to say that home births are safer or have no significant risk over hospital births (Olsen). So the critical issues are: skill-training of attendants and readiness of transport and referral services. So what are our options:

- First of all develop the Rural hospital and FRUs and transport system for EOC (avoid the two Delays: transport and Emergency medical intervention). This is important from every angle. In fact Maharashtra has taken a loan of over 700 crores from World Bank to do just this and the MHSDP project will end in 18 months. Unfortunately FRU system at block level is still not ready.
- For skilled attendance, that a trained ANM is generally better than TBA needs no proof⁵. But ANMs are not available for every village and so far have been able to attend only 5-10% home births. The reasons are in the subcenter system. There are reports on why ANMs can not stay in SC and that they have so little time anyway. The NHP 2002 intends to double the number of ANMs in tribal areas but there is nothing on the provision side--neither money nor training. The Nursing council reportedly is withdrawing the ANM course altogether and the current course of female HW is not good enough.
- About doctors in rural areas, they are generally not oriented to good childbirth practices and EmOC. Often they have no training and even the MBBS have little obstetric training.

⁵ We saw an excellent example of a good SC run by an ANM in Madhya Pradesh⁵. If SCs offer dependable childbirth services, people will still use them as it reduces costs, distances etc. We have not allowed SCs to develop and sacrificed them for the mobile-MPW model. This is a policy gone wrong long back.

Many of them end up giving oxytocin injections and worsen the situation. The statistics of so called-skilled attendance is thus misleading.

- The Community Health Nurse is a new option floated by Andhra Pradesh (MoH&FW, 2003 (Speech by Minister of Health at Asian Rural Health Congress, Pravaranagar, December 2002.) . Essentially she is an ANM with low salary and 'community' is expected to lend the rest of the support. The idea can work only if a village community can support her through fees. In Poor areas, there may no cash with the families to pay her. A woman (the nurse) from outside the village, with no support from her family and uncertain income in an alien village are the 'risk factors' in this model.
- Old TBAs are learning five safes but not much on risk screening. This can change as we start training new TBAs to replace old ones. It is possible to think of any new rural health workers to have basic obstetric training. The YC Maharashtra Open University is preparing such modules in the ODL (open Distance Learning) mode, which can be useful.

The District RCH societies should be empowered to develop resources and strategies to suit the situation.

LOW BIRTH WEIGHT AND PRETERM BABIES

Low birth weight (together with pre-term/premature babies) make an important cause of death in the list of infant mortality in Jalna and Yavatmal (it is not stated so in the Nandurbar statistics, but situation could be no different). This can be detected in pregnancy by ANMs and even by TBAs with good training.

But lower birth weight is also a social adjustment against difficult birth and a possible maternal death. *Whose life is more important for the family, mother's or baby's?* Asks the researcher and the answer is self-evident. The baby can not be more important than the mother is the conclusion. In the light of these observations, it is necessary to be cautious, rather than over-enthusiastic about Birthweight statistics. It is another matter that proper feeding after birth can make good some of the lost opportunity. A saner position will be to ensure better primary and FRU care and then promote the cause of Birthweight.

The factors working against Birthweight, apart from underfeeding of the mother in pregnancy, are anaemia, toxemia, high blood pressure in pregnancy and also tobacco-consumption (smoking and chewing).

The ANM can predict lbw by from the symphysis-fundal height (SFH) at the SC."⁶

For survival of lbw babies at primary care level

Kangaroo Care methods for home based delivery and use of thermocol box while referring the child for secondary care or as a part of kangaroo care needs to be promoted. Thermocol box has been used at a hospital base in Mumbai. It has been widely distributed to the SC and PHC in Yavatmal district but not used at all. The SCs are not trained for its use. Right now, there is no strong evidence of the benefits of any method of LBW care. (Please see table in the introductory section).

LBW is a predisposing factor for other causes like infections. Therefore, good ANC to detect foetal growth restrictions, supplementary feed, 5 cleans during birthing and adequate PNC include newborn care with availability of suitable antibiotics can prevent deaths as a result of diseases like cord infections and ARI. Use of salt, oil and antiseptics need more evidence to show its benefits or harms,⁷ Early breast-feeding also contributes to preventing all infectious diseases including cord infection.

Of Preterm/premature births

The incidence of preterm births has increased. All preterm births are low weight. Considering the weight of babies and anaemia, the period of gestation could be around 34 - 36 weeks. The preterm baby results if the pregnancy is halted before 15 days of expected date of delivery (EDD). Preterm babies generally are LBW but all LBW babies may not be preterm. Considering a baby preterm depends upon the exact calculation of EDD and the duration of pregnancy before which one considers preterm. It seems there is confusion in this aspect.

As the data of preterm births is not available, the exact cause of preterm births cannot be deduced. Anaemia, certainly is a contributory factor. There is no facility of ultrasound in the

⁴ Bergsjø P, Villar J: *Power to eliminate or alleviate adverse newborn outcomes; some special conditions and examinations. Acta obstetrica gynecologica Scandinavica, 1997;76:15-25. Cochrane Library Review, 2003*

⁶ Buchmann E. *The use of symphyseal fundal height in antenatal care: RHL practical aspects (last revised: 24 June 1998). WHO Reproductive Health Library, No 6, Geneva, World Health Organization, 2003 (WHO/RHR/03.5).*

**this was a concern expressed by the PHN because it is a custom among certain communities for women and children drinking.*

⁷ Capurro H. *Practical aspects of routine umbilical cord care after delivery: RHL practical aspects (last revised: 11 May 1998). WHO Reproductive Health Library, No 6, Geneva, World Health Organization, 2003 (WHO/RHR/03.5)*

rural area, which probably could have given idea of congenital anomalies. Vaginal and uterine infections are very likely possibilities of preterm births. Twin pregnancy, (in Jalna which was 5.1 percent in 2001, 2 in 2002 and 4 percent in 2003) also results in preterm births. There is no facility of ultrasound in the rural area, which probably could have given idea of congenital anomalies.

A premature baby can be recognised by some signs and this needs some good training. With either HBNC or Warm box referral, many of them can be saved and they even gain weight and catch up with other babies. However in a poor family with and poor health services (PNC visits esp.) the chances of deaths are higher than survival.

CHILD MALNUTRITION AND ICDS

When asked about malnutrition, AWWs talk only about Grade 3 and 4. But what about the Grade I, II children? The ICDS has to provide nutrition to the children of 0-6 age. It has a task of preventing malnutrition. Focusing on Grade III/IV shifts it to preventing **deaths** due to malnutrition and not malnutrition itself! AW should be involved in all the tasks for preventing malnutrition using supplementary feeding. It needs to continue in areas like Yavatmal which shows that diarrhoea is no longer a major cause of infant death, It is still a major cause for hospitalisation and OPD attendance by 0-5 age group. ORS therapy combined with adequate diet can reduce the burden. Other support mechanism like productive farming, EGS and PDS would be required. Till then, monitoring ICDS activities as pre-school education and malnutrition prevention activity would ensure that the children would not be malnourished.

"... in the more deprived areas, the mid-day meal is a protection against hunger in general. This year, for instance, mid-day meals have helped to avert an intensification of child undernutrition in many drought-affected areas. Similarly, poor households such as those headed by widows or landless labourers value the assurance of a free lunch for their children. The contribution of mid-day meals to food security seems to be particularly crucial in tribal areas, where hunger is endemic." (Drez J. and Goyal A. 2003)

Why not eggs in ICDS?

One of the researchers had a chance interview with a member of poultry association of Maharashtra. He had campaigned for supply of eggs to AWs from Poultry association; this could have advantaged both the nutrition status and the poultry economics, which is tottering for some years. The idea was shot down by religious zealots of the vegetarian camp. He fought with them publicly as these families never send their children to AWs and have thus no right to deprive other communities from their rightful culturally accepted food. In case any one opts for non-egg feed, the AWW can help. The option of eggs is worth exploring from both ICDS and poultry

3 D study on determinants of child mortality

interests. However, there could be some transport and storage problems, which may limit this option of eggs to one-two days in a week.

Vitamin A drive in Nandurbar

It is well known that Vitamin A is necessary for not only prevention of night blindness, but also for creating resistance to infectious illnesses like ARI and diarrhoea. Child mortality by all causes falls by 20% with Vitamin A coverage and by 35% in case of ARI. This is however not applicable to neonatal deaths, unless the mother has enough Vitamin A in her body. But for above 9-m children, Vitamin six monthly dose is an extremely important cover. While overdose can kill a baby, mostly there is only vomiting, which is also rare.

GENDER AND RCH SERVICES

The RCH context of child deaths and health is an important development in recent years. Poor management of AnteNatal, Intranatal and Post Neonatal care is indeed a gender issue. Women need health services so often in their lives--2-3-4 childbirths, abortions/ MTP and so on. Many men may not need hospitals in their lifetimes while a woman needs it 3-4 times in her lifetime. Accessible hospital services can not be an issue for more neglect.

Age of marriage and first pregnancy remain crucial issues. Age of mother is a predisposing factor of Preterm baby and LBW. Although there is a caste-tribe angle to some differences, being rural is the most crucial determinant to early marriage tradition. Education (or literacy as a proxy) and urban migration/urbanisation are sure ways of improving age of marriage, not merely law or IEC. A legal reform regarding marriage age (Wasim M.,2002) is essential but not a sufficient measure to change its health implications if it can be manipulated on paper.

DWINDLING BUDGETS

Maharashtra's proportional health budget allocation is falling every year since 1980-81.

	1980-81	1985-86	1990-91	1995-96	1998-99
Total health expenditure of the state in crores	1307	4782	4976	9061	11855
Per capita expenditure	20.99	69.12	63.67	105.46	132.20
Budget in % of Revenue budget	6.53	10.65	5.68	5.28	4.62
Budget in % of NSDP	0.80	1.7	0.80	0.60	0.60
Source: HDI 2002: GOM: main features <i>Thalak Mudde</i> pp 10					

With this trend of falling allocations, several problems arise:

- There is a brake on creating new Staffing positions and filling up vacant posts
- Salaries have to be paid, but non-salary expenditures (drugs, POL, training, equipment, maintenance etc) suffer, adversely affecting work environment, facilities and motivation

3 D study on determinants of child mortality

On top of falling budgetary provisions, the GOM has faced cash crunch on several occasions and the inability to pay wages in time has further hit the morale of the administration.

RECOMMENDATIONS

SHORT TERM AND IMMEDIATE CONTEXT RECOMMENDATIONS

Recognise and reassure health staff

Whatever mortality and malnutrition exists, it is necessary to take the health and ICDS staff in confidence, avoid threatening them for things they are not fully responsible. Often the first effect of positive efforts results in *increase in numbers of reported child deaths because of faithful registration of events*. This must be understood as inevitable. As health staff commits itself to better registration and recognition of the problem, the management has to plan appropriate steps to find answers. For instance it is not possible for the ICDS services staff to reduce the bulk of malnutrition in the tribal blocks in the current situation of Nandurbar and prevailing programme profile.

There are several problems external to ICDS that cause severe malnutrition. Yet there could be better management of things internal to the ICDS scheme. The political leaders, NGOs and media also have to develop a rational approach to the problem rather than splash the issue periodically.

Support TBA and home birth

Since 60-80% childbirths are still at home and intranatal and neonatal mortality is the biggest component, improving home birth scene is the first logical step⁸. TBA services coupled with pre natal and EOC referral support are the only strategy possible for reducing stillbirths (many of which are actually neonatal deaths) and early neonatal deaths.

The untrained TBA is still on the scene in the three districts, probably because only one TBA is trained per village. It is indeed difficult to say what are the differences between the trained and the untrained TBA. Five clean training (and some commensurate care) can be one difference. Linkages with the ANM are the next difference, though the linkage is functionally not very strong. Having a DD Kit (in tribal area) could be another difference. However risk detection by TBAs-trained or untrained--is not very strong, which has been confirmed from all the three districts. The Still birth narrated from Nandurbar is a case in point.

Though various programmes are in place for improving TBA services, there needs to be comprehensive approach on this, in place existing fragmented and incomplete approach. The essential elements are:

⁸ *Despite the prescriptions*

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- Select all TBAs, plus a new candidate to replace the old one in time and in each locality.
- Do a proper training (or help them learn) with visual and hands on learning at FRUs or PHCs. YCMOU is preparing ODL modules for safe Childbirth and this can be of great use for the huge number of TBAs in the state. (Ashtekar S., 2004)
- Supply optimal equipment, not just DDKs
- Develop a system of monetary reward for safe birth--on criteria ranging from ANC to PNC involvement (see table 45 on NGO interventions)
- Develop a system of pictorial records and birth monitoring
- Reward AWWs for good care of baby and follow up from birth.
- UNICEF has trained new candidates as birth attendants (community based birth attendants-CBHA) in 300 villages of Osmanabad district and their assessment is satisfying (personal interview with Dr Neelam Bhardwaj -UNICEF-on 29th Nov 2003)

Better Use of Health workers/PHWs

Since the ANM has to work on a wider area and be mobile for that, a village based health worker is necessary to look after general health care needs (including childhood illnesses) In tribal areas, the pada health worker is already provided. What is necessary is enhancing his/her capabilities and skills by more training and support better management. In non-tribal areas, 60-70% villages are without village based health workers. This needs to be answered. One such pilot proposal is included in the 10th Five Year Plan of Maharashtra but the Govt is dragging its feet on budget provision and implementation.

PHWs, though men all of them, can be of help in padas for preventing child deaths. Currently their training is weak and so is the equipment. We recommend:

- Make the PHW scheme for 11-12 months, not just 6 months
- Improve PHW training and equipment to include RCH care
- Let PHW take over some functions of the ANM at the Pada level and let the ANM improve specific tasks in RCH with more time available to her.
- Women PHWs will be far more effective on RCH matters than men and they will be future 'RCH workers' to buttress PHC and SCs.

Revamp AWW-ICDS services

The factors external to ICDS can not be changed overnight. So we need to make some changes within the ICDS scheme, esp. after the pay packet of AWWs is a lot better now.

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- Orient the ICDS system for more truthful recording of weights and grades, without punishing for recording the truth. Involve the community in this task--the parents and an independent agency to monitor.
- Improve the feeding system on sound nutritional principles, include more oil to the food.
- Train AWWs to do sickness-screening and refer to SC /ANM for action.
- Involve AWWs since childbirth, the current involvement is more on 3-6 yr. group
- Involve the AWW and the TBA in AN care.

39. PROBLEMS AND SUGGESTIONS ABOUT ICDS-AW

Problem	Suggestion
Weight-grade recording problems	Make it more realistic, better monitoring
Improper supplementary feeding management	Rethink on feeds and cooking practices.
Huge paperwork and unwieldy MIS	Simplify primary records and registers
Poor medical services back up	Train AWW in primary care
Weak U3 child component	Think of adding a crèche unit(s)
Weak ANC component	Train for AN Care, risk detection and referral,
Weak neonatal care	AWW attendance at birth desirable (give incentives)

This is like converting AWW into a village MCH worker. AWW unions should see this as a permanent opportunity rather than a threat.

Training of PMPs

About 60-80% of medical care, esp. primary illness care, is in the domain of GPs in rural areas. They are better distributed than Govt medical centres and therefore offer more access and reduced travel costs. The charged fees/costs are considerable and out of proportion to the services. However, the major problem is in the area of quality of care. There are specific problems and solutions. It is possible to train PMPs in not only child care but other programmes as well.

40. PRIVATE DOCTORS: ISSUES AND SUGGESTIONS

Problems	Suggestions
Most of them are Ayurveda/homeopathy/BEMS doctors. Some not even formally trained. However most of them use allopathic remedies without much understanding of the system.	Legal solution for GP services needs to be worked out. Programme for primary care training, to be made mandatory before prescriptions are honoured by drug stores. KEM hospital Mumbai has prepared such an EDL list and Standard treatment regimens.
Lack of regulation	Involve ZPs and panchayats in listing, Close shops of those holding unacceptable qualifications.
Varying practices and approaches	Useful protocols on major National Health programmes like ARI management to be shared with PMPs.
Lack of health statistics feedback	Ask for voluntary reporting on key problems-give formats and start collection system- even on phone

Training of TMPs

Traditional Medical Practitioners (TMPs) are important in certain blocks and for specific health problems. They are not connected to the mainstream medicare system and there is little communication even among themselves. Some legal/administrative barriers exist for the Govt machinery to co-opt these healers. But some moves are possible, like taking them as health workers/ PHWs etc. They can be even rewarded for some tasks-- for example safe births or ARI treatment.

The next task could be to tap health resources-healthy practices and herbal knowledge and harness them for improvement of both TMPs and public health system, esp. the PHWs. The PHW offers a bridge between the traditional and the formal system.

41. TRADITIONAL MEDICAL PRACTITIONERS: ISSUES AND SUGGESTIONS

Problem/ issue	Suggestion
TMPs not listed, practices not documented in each area	List TMPs through Grampanchayats. Do a profile research in each area on what they do to what problems
No communication with mainstream health care system and even within TMPs	Start block or PHC meetings with help of BAMS doctors, once in six months.
No documentation on good/bad practices	Listing problems and remedies with help of BAMS doctors, understanding the good and bad and sharing useful information.
Legal problems	Use existing Govt scheme (known as the Rs 1600 scheme) to list and license them for that village.

Biomedical options for child survival: oil feeds and salt-on-Umbilical cord

A lot of research has gone into child survival and more will be coming. Immunisation and ORS are established ones and have shown substantial results. However there are several inputs from traditional sector that are so far not considered. Three such suggestions are given below.

- Edible Oil by mouth (or oil basti from Ayurveda?) for malnutrition.
- Application of salt on umbilical cord (Dr Hemant Joshi's oral communication on this issue) to avoid sepsis and hasten drying up of cord.
- Involve Ayurveda and local health systems like home herbal medicines, rather than discourage the community from using home made remedies.

Involve SHGs/ Village Panchayats

Much needs to happen at home and the village to ensure safe motherhood and child survival. There is already a village health committee in the Panchayat but it is currently not very empowered. there is also a committee for registration of births, stillbirths and deaths, but its work is yet to take off, and it is necessary to make the Gramsachiv its secretary rather than the AWW who is powerless in the village scenario.

EmOC system

Emergency Obstetric care at village to hospital level is a weak system in all districts and several things need to be done at various levels, as shown in the table below.

42. SOME SUGGESTIONS FOR PROMOTING EMOc

Issue/level	Situation	Suggestion
Risk Identification	Neither TBA nor ANM is seriously involved	Clear protocol for risk referral to be made available Support the TBA for care and referral. Risk awareness at the family level
Transport	Scant transport facility, and expensive	Give transport coupons to families with risk pregnancies for EmOC
Hospital care	RH not developed	Monitor EmOC work at each RH Training and support management

RECOMMENDATIONS IN THE MID TERM CONTEXT

Improve MIS network and management

MIS data collection, compilation and analyses all need to be improved. This system of data compiling (and analysis) must be started at block and District level with help of online MIS management. The Bureau thereafter will only compile e-reports for the state from various sources.

The health staff may want to hide or conveniently ignore events to avoid further trouble, esp. in remote difficult areas. How to remove the fear element is to be thought about and the erstwhile DHO Nandurbar had done that successfully. This must be an official policy rather than individual wisdom of an officer.

Review and optimise ANM functions/home visits

At least in areas where PHWs and AWWs work, this full-roaming ANM-SC model can be changed to a stationary (or least-roaming) model. Except PNC visits, there is little need for actual home visits and NFHS-2 has shown it adequately that the home visits are mostly about an illness problem. It is possible to undertake an experiment in UNFPA and UNICEF programme districts. Unfortunately this basic reform is neglected.

Some other specific suggestions about subcenter:

- Much needs to be done on quality care in RCH --from new skills to keeping optimal MIS records. The huge recording system is unwieldy.
- Physical infrastructure of SCs is a big problem in tribal areas.

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- It will be worth trying at some SCs to make the ANM stationary and weave the RCH tasks around SC with help of PHWs and (supported) TBAs. This might yield higher results than spread her services thin all over.

PHC strengthening

There are several problems of PHCs in the existing health system

- The mother PHCs are doing somewhat well, but daughter PHCs are still lagging on many tasks, childbirth services for instance. There need to be some OPD/IPD criteria as well for PHCs.
- Drug lists are adequate, but supplies can be erratic in non-tribal districts like Jalna. The average drug budget for PHCs is insufficient (Phadke). The health dept will do well to a) proper tendering through Internet b) need based-supply for PHCs c) Prescriptions for select drugs for non-BPL families. c) Making available other healing options in select problems (Ayurveda, acupuncture etc) d) and improving drug budgets.
- There are several BAMS physicians managing PHCs in the district. This need not be lamented. It is necessary to orient them for modern medical science and usage of select remedies.
- The main job of PHC HQ is to offer medical services. The AW visits should not replace or weaken OPD IPD services. It may be a good idea to reschedule AW visits in 9am-10am slot and run OPDs at 11 am to 1 pm. For this they will need motorbikes, which can be facilitated with loans and some POL.
- Need to monitor clinical functions of PHCs, computerise at district level all clinical workload entries and categories and improve patient satisfaction.
- There is urgent need to establish childbirth services at all PHCs, if necessary with help of TBAs & ANMs under supervision. This will be a good venue for TBA training. This will be relevant where doctors do not have experience of childbirth services so far. Draft RCH2 has expressed intentions that all PHCs will have 24 hr childbirth services.

EmOC at Rural Hospital-FRU

Better posting policies are possible and necessary. The GOM can post *PG doctors (like MD Gynaec.)* to RH in the compulsory posting period instead of *graduate doctors (MBBS)* who have no experience and application.

As a demonstration and short term measure, it will be a good idea to request various philanthropic Missions to post doctors to one RH in each difficult district (like Nandurbar). We may even approach Medicines sans Frontiers for staffing some RH.

MHSDP and UNICEF are two agencies working to develop some hospitals into FRUs. The district hospitals are already established institutes from the British period, (though Nandurbar has not one such CH). The DH category may further improve through these efforts, but RH may still limp on, largely due to EOC-inactive MOs.

The RKS experiment in MP holds one example of creating user-participation and provider-accountability in the hospital system. MP has made positive changes even at the RH level through the RKS. For any public hospital improvement funds and participation are two major inputs, but which should come first? RKS has confirmed that participation is more important and funds will follow.

Pvt. FRUs are coming up in blocks with some paying capacity like Shahada. However their use is limited, as fees are stiff. A long-term approach on hospital regulation and BPL health insurance is necessary before Pvt. FRUs can be useful even for poor people.

Finally, it must be said that FRUs are a pre condition for good primary care networks. If FRUs can not do EOC, there is no ground for blaming TBAs & ANMs for not referring risk cases enough.

- For posting doctors, there needs to be a state policy of tenures. A fixed schedule of tribal-rural-town-city posting can be given to specialists and reassure them that they will not be lost in the 'blackholes' forever. This is possible only with a strong political will.
- A second/additional option will be to make compulsory postings *after Post Graduate rather than before it*.
- Good doctors alone can lift the RH FRU from the abyss.
- Rogi Kalyan samitis (RKS) is a successful experiment in MP, why not start it here in Maharashtra?

LONG TERM AND WIDER CONTEXT RECOMMENDATIONS

Poverty and infrastructure

Needless to say that poverty and infrastructure issues are important in themselves, and not because of IMR or CMR. It affects child mortality in several ways and various Govt depts are expected to mitigate these effects through special inputs. Hence fixing responsibility for child deaths is an interdepartmental issue. How the child died should be less important than the chain of antecedents and determinants. All COD reports should carry some information on the predisposing cause (like malnutrition) and the social antecedents like migration and village economy profile.

Health sector management

More than narrow vertical programmes like sepsis management, the team is convinced that health sector management is important for long term gains. The primary and secondary tiers of health care need to be improved substantially and so also the Pvt. sector care. The Govt has solemn responsibility for this esp. in the poor-rural areas. Misuse of existing funds and lack of development funds are twin problems--the problem is burning at the both ends.

We draw the attention of all to the larger issue of primary health care--essential, equitable, accessible, affordable, participatory, resource based --health care *was* and *should be* our goal. If the birthing debate is limited to MMR /stillbirths and child health limited to child mortality, we may miss the larger agenda altogether. Such reductionist / vertical approaches are denounced by health policy experts long ago but still continue in one form or the other, and according to David Werner some US Universities have made it a business to reduce Comprehensive primary health care to selective primary health care (DW in Health for Millions).

The story goes that The Great Newton made big and small holes in the wall for his cat and kitten to move in and out. He finally noticed that only one big hole was enough for all of them. Are we repeating the folly in health care by inventing narrow programmes without making comprehensive primary care widely available?

It will be worthwhile to draw attention to the five Lancet papers on child health, and the dominant tone of them all is to find/provide effective delivery systems for technical solutions, which are already proved effective (and not more of technical solutions). In the context of Maharashtra, it is the big gaps of outreach system in the private sector, and this is to be blamed on the top-down national health system model we accepted rather than on the GOM dept (which should be faulted only for implementation deficiencies and not the design problems)

The NHP 2002 and 10th Five Year Plan seek to address these problems. Doubling the number of subcenters is one such proposal. That this will be haunted by the same problems (ANM not staying at HQ, roaming work etc) despite huge costs (recurring and non-recurring) must be said here. It is wiser to use local persons for village based work--this will reduce costs and ensure better services.

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1. INTERVIEWS

AN INTERVIEW WITH A TRADITIONAL BIRTH ATTENDANT IN JALNA

A typical interview with a TBA in Jalna is detailed here to understand the components of TBA training and practices

- Trained in PHC Varud. Trained by Supervisor in 1994
- She is working as dai since 1994
- Training for 3 months
- Remembers 5 cleans from training
- No training or user manual.
- Conducted 300 deliveries so far.
- She does not conduct any abortions
- ANM, doctor very co-operative, and know her.
- PHC co-operative for referred patients.
- DDKit not available, but sometimes given by ANM (eg-gloves)
- No honorarium from govt. (allowance for meeting is given)
- People give on an average 1-2 Kg grains / 10 Rs / Bangles per delivery.
- Yearly income 200 Rs / year
- Works as part time helper to ANM
- Can conduct normal birth.
- Understands Height (size) of uterus and orientation 6th month after.
- Cannot take baby weight, as instrument is not available. Cannot check FHS, BP, WT, HB, Urine
- Can recognize breech (buttocks down) during labour
- Can identify presenting part by PV examination.
- Can identify intrauterine deaths by inquiring of labour pains.
- In twins the size of abdomen is big, At times, one can palpate 2 heads.
- On vaginal exam, can recognize hand prolapse
- Refer high risk cases to PHC Varud
- Practices 5 cleans
- Uses rubber gloves.

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- Can identify true from false labour pains
- Can predict the time of delivery by PV examination.
- No injections to give.
- Does birthing in lying down position, not squatting.
- Advises bearing down after full dilatation.
- Supports baby's head during delivery.
- Does not know stages of birth.
- Identifies danger if mother has swelling over feet, and if delivery does not occur within ½ an hour after full dilatation.
- Cuts cord by new blade.
- She does not interfere for placenta removal. Allows delivering placenta on its own.
- Advises injection on excessive bleeding
- Cleans baby's mouth with cotton or clean cloth.
- Cleans throat by fingers
- Tickling feet, slaps back or mouth to make the baby cry.
- No cold water splashing
- Keeps baby warm
- Advises baby bath on 7TH day
- Dangers for baby identified when –it refuses to accept feed or unable to cry
- She looks for anomaly in the baby.
- No birth weight (is taken) as no weighing machine
- She advises immediate breast-feeding .
- Advises clean cloth or pads
- PNC visit irregular
- Does not offer treatment in PNC visit.

Her Suggestions

- Every village should have trained dai
- Dai should be provided with necessary instruments, kit and drugs.
- Govt should pay honorarium to TBA

FGD WITH DAIS IN PRESENCE OF ANM – YAVATMAL

- Birth / Deaths informed by her and registered by ANM and Gramsevak.
- Most pregnant women visited ANM within 6 weeks but registered after confirmation.
- ANC check up includes abdomen examination, Hb, weight, BP urine sugar etc.
- ANM gives IFA tablets after confirmation.
- She encourages them to go to the PHC or to Yavatmal hospital.
- However, most of the deliveries at Tekdi are home deliveries. The two TBAs had conducted 5 deliveries in the last year.
- A delivery is conducted in a sitting position. They use the 5-cleans approach: room, clothes, handwash, new blade and thread. They used gloves. Gloves shown were new given by the ANM.
- The baby's mouth is wiped with the cotton gauze given by the ANM. (The gauze shown was new and clean) The cord is cut after expulsion of the placenta.
- The woman has to stay in the dark room at least for 3 weeks. She can have suji (wheat floor kheer) and dal rice only.
- After the delivery, the child is bathed immediately. The family members insist on applying Kunku to the cord for quick drying.
- They encourage the mothers to start early breast-feeding but most families delay it for 2 days.

The child is weighed by the ANM after they inform her about the birth. She had an old spring balance but no bag for the newborn. There is no AW in the village. (About 100 households)

INTERVIEW WITH A PVT DOCTOR IN NADURBAR

Though there is some variation in what PMPs do in general practice, the oft repeating pattern is revealed in the following interview with a common kind of GP--BHMS. At Lonkheda in Nandurbar we visited a private practitioner ABC (DHMS) practicing for the last 5 years. He hails from Gujrath and came here for education of children. He has a 5-acre farm at his native village in Gujrath. he gives a typical picture as follows:

- Daily practice in morning and evening.

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- Average 4-5 patients daily, sometimes 7-8.
- Also does home-visits if called, but has no phone connection.
- Average fee Rs.20/- per patient (includes 1 injection) and medicines are prescribed except when there is emergency.
- I attend childbirth and give pitocin injection (1-2) on buttock. Then I wait till she delivers but I do not do the delivery, the TBA does it.
- I don't have a delivery kit (peti).
- I take 100-250 Rs. for each delivery.
- I give TT after delivery and two more injections - analgin and oxy tetracycline mixed in single syringe and prick it on buttock.
- Never gave injection to any newborn or below 1 year.
- If the baby does not cry I heat the placenta on fire. This method he has learnt from a MBBS lady doctor.
- I never used methergin (used for shrinking the uterus after childbirth) injection.
- In the OPD I see some children occasionally.
- Child patients have fever or cough or LM or vomiting, not many worm cases.
- For fever I give penicillin injection 1cc single. If there is no effect in 2 days I send them to Shahada (single injection of penicillin has limited value, but still thwarts the infection somewhat).
- If there is an improvement I give Proxine and also chronic syrup.
- If there is LM I give furazodilone If the child is 1 year + I give penicillin injection or gentamycin.
- I charge 20Rs. With injection. But this is not profitable.
- Many patients ask for Udhari and often adjust money later. I get about 2500 to 2300 Rs. per month.
- He has recently purchased a motorcycle.
- Family: a wife and 4 kids-- 2 sons, 2 daughters.
- I give homeopathy medicine also.

As we interview him a woman comes with a 1-year baby for checking. She is pregnant too (3rd para). The baby has cough and fever for 4 days and was given crocin syrup. They have come back as there is no improvement and they want an injection. The baby is never taken to AW and

she doesn't know the baby's weight. In the family every one who can work goes on farm and young children accompany. Older children are at home, often alone.

INTERVIEW WITH PMP IN YAVATMAL

Dr XX is a practicing doctor since 5 Years. He is a visiting doctor, comes daily in the morning and goes back in the evening. He claims to have a degree in electrohomeopathy. He attends to 15-20 patients daily, of which 5 - 6 are children. ARI and Diarrhea are the common illnesses he encounters. He takes no consulting charges. But that is compensated by a tonic injection for every adult patient. He uses boiled syringes. He is aware about HIV / AIDS risk. The source of information for such diseases is the local newspapers. He is keen to undergo any medical course and also ready to cooperate in preventing AIDS. The organisms are becoming resistant and hence he prescribes higher antibiotics at times. He also uses steroids for quick relief. Currently he enjoys faith of people as he is looked upon as one who cures the disease.

INTERVIEW WITH PHN OF DISTRICT NANDURBAR

The PHN MCH/RCH offers a very comprehensive array of observations and opinions about the RCH situation of the district. The prominent points in the interview are :

- Age of marriage for Marathas and Patils is about 18+ and for tribal girls it is 14-15 years.
- Most ANC registrations actually happen at 24 weeks.
- About 50% ANMs check BP and Hb but others do not. Foetoscope or stethoscope is not very commonly used. Urine test with strip is a routine matter.
- Referral of emergency obstetric cases (EOC) go mainly to Pvt. hospitals as RHs in the district is not well developed and so is the district hospital. In this sense there is no FRU in this district at this moment.
- In Pvt. hospitals an C-section costs about 10000 Rs. This becomes very difficult for poor patients.
- We train TBAs for ANC checkup also. (However TBAs do not do AN checkup)
- DDKs, gloves and warm box are all provided by ANM to TBAs.
- Monitoring of labour pains by TBAs is not very rigorous.
- TBAs do not understand the descent (progress) except by rectal (anus) dilatation.
- Childbirth at home usually happens in squatting position but Pavara tribe is an exception.
- TBAs needlessly press abdomen during birth despite all advice against it.
- Generally TBAs clear the baby's throat and wrap the baby immediately. But families prefer to give a bath to the baby after birth.

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- Most TBAs in the district are trained. In fact all except 21 of the 1105 TBAs are trained.
- Breast-feeding is done immediately by most mothers.
- TBAs are using 'hand held' spring balance for weighing babies. (Ideally this should be hung by a hook for correct weighing)
- The PNC visit by AWW generally happens within 5 days. Only 30 - 35% PNC visits are conducted. The first PNC visit generally comes on 3rd day.
- Late weaning is a problem underlying malnutrition.
- Childbirths and deaths are almost completely registered and reported for some time. Because of pada workers and AWWs there is no possibility of unreported birth or child death in the district.

AN INTERVIEW WITH ANM IN JALNA

- The subcentre has a population of 9837 spread in 4 villages.
- Coordinate with AWW and Gramsevak and we all maintain Birth-death register.
- The common age of marriage in girls is 16 – 17 years.
- ANC registrations are done at 12 weeks.
- ANC check up is done for about 5 times for each mother.
- ANM does Hb estimation and gives FS. Double dose for Hb < 8 gms %
- BP apparatus not working since 4 years
- I Do abdominal examination. Can identify presentation. Can locate FHS by foetoscope.
- 2 doses of TT are given
- Albumin is checked by uristix.
- I know signs of Toxaemia of pregnancy.
- Referral is done to Bhokardan RH (No services available at PHC). Usually there is no feed back from them.
- Knows the causes of referral
- She does not accompany the patient.
- Can identify if the baby is dead in the womb.
- 37 ANC mothers are registered from 1 April 03
- Observes 5 cleans.
- New blade and boiled thread are used

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- Supply of gloves and cotton adequate
- No supply of delivery kit to Dai.
- No *ubdar peti* (warm box)
- Mouth cleaning done with cotton and if required mouth-to-mouth respiration is given.
- No use of partograph (a tool for checking progress of birth) / She does not know about it.
- She does not understand stages of birth..
- Does PV to understand presence of membranes and cervical dilatation.
- Can differentiate between true and false labour pains.
- Birth done in lying down position, not squatting.
- Excessive bleeding is if it soaks >3 pads, then she gives Tab. Methergin.
- Common practice is to keep mother and baby in dark and ill ventilated room.
- Receives baby herself or relatives help
- Knows the APGAR signs (vital signs of the baby like breathing, color, muscle tone etc)
- Wraps baby in cloth to keep it warm.
- Baby bath on 1st or 2nd day.
- Looks for congenital anomaly
- Can identify baby injury.
- Immediate breast-feeding is always advised.
- She records baby weight.
- She can identify preterm baby by due date. The preterm baby has low weight and has shrill cry.
- Baby failing to cry, those having anomalies, grunting. refusing feed, convulsions bluish baby, big caput (swelling) are referred.
- Cleanliness, minimal handling of the baby, expressed breast milk in spoon and bowl, wrapping in clean cloth to keep baby warm are the precautions advised.
- Preterm births, maternal starvation, are the common causes of neonatal deaths.
- Refers cases of retained placenta and vaginal tears.
- Looks for danger signs before trying for labour.
- She has to use private vehicle for referral.
- No facility for immediate treatment for baby in distress.
- She visits only 80 % of PNC and only in Headquarter village.

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- She does PNC visit in first 24 hours.
- She looks for danger signs: heavy bleeding, fever, foul smelling discharge and SOS referral.
- Looks for jaundice, umbilical sepsis in baby and SOS referral.
- Refers baby < 1.5 Kg.
- Not possible to have 3 visits for PNC. Able to visit 50% of cases.
- Weaning at 4 months.
- Has ORS, Paracetamol, FS and dressing material.
- Undertakes regular immunization and advices about nutrition.
- If possible she co-ordinates with AWW for weight check up.
- The medical officer visits for check up of babies.
- Open defecation is the normal norm
- No habit of hand washing.
- Water supply system in place, but drinking water available alternate day.
- If demanded bleaching powder is supplied by Gram panchayat.
- Gastro cases are common in rainy season.

2. NANDURBAR SPECIAL RECOMMENDATIONS

TRIBAL BLOCKS/COMMUNITIES AND THEIR SPECIAL PROBLEMS

Hill habitats, poor infrastructure, low literacy, underdeveloped agriculture and livelihood sources, seasonal migration, early marriage, high child mortality and big family size are major factors in Nandurbar. It is better that we start thinking how to improve the health care network than merely worrying about the statistics part. Let us develop a health care delivery system to improve all round services rather than debate what is the real IMR.

ROLE OF UN AGENCIES

UNFPA and UNICEF are two UN agencies working in the district for last five years and they work through the same Govt health system. Health dept itself has some special inputs like the malnutrition wards, Matrutva Anudaan Yojna, Pada health workers etc. Together this is a substantial resource.

However, there seems to be some overlapping and less coordination/congruence between the two UN agencies. They need to either divide blocks between themselves or else divide line items (life cycle interventions) between themselves (like TBA training, AWW training, PHW support etc). The sooner this is done by the Health dept, the better it is for the health delivery system resource management.

SPECIAL PROGRAMMES :ARP

Action Research Project (ARP) by UNFPA combines MCH services by bringing together the ANM, TBA and AWW at the village level and facilitates child survival strategies like AWW presence at birth, genta injections for neonatal sepsis. However the ARP has only minimal presence and has not really taken off. The TBA is not really part of any system and AWW is not much involved in ARP. Management of sepsis also is limited to ANM-SC village or the just the PHC village where special inputs are not necessary.

The lack of support to TBAs by the system (just DDKs and occasional training of poor quality) seems to be the underlining problem of ARP. AWW need to be compensated appropriately for the birthing services. Finally why ANMs can not give Genta injections at least in the SC village (if not other villages) needs to be known. This could be due to lack of support from PHC MOs.

MALNUTRITION WARDS

The malnutrition wards/admissions is a fire-fighting activity in some blocks but it is just able to ward off deaths--may be for some more months. The effort is not equal to the size of the problem. The community itself is not very eager for this help as many refuse admission and some

abscond soon after the admission, despite the fact food for mother and 40 Rs daily to make for the wage- loss is offered. (The real action must happen at ICDS level, or better still at the Socio-economic level.).

This said, protocols for PEM management are not established and UNICEF is about to develop such protocols with help of experts.

HEALTH STAFF PROBLEMS

Health staff is not willing to stay in tribal blocks. MBBS doctors either do not join or do not work. Many posts of LHVs are vacant and half of Male MPW posts are vacant affecting fieldwork and creating pressure on the ANM. The ANM may or may not stay at SC and she is also under stress in the difficult blocks. It is difficult to get work done from unwilling staff, esp if they are posted in difficult areas.

The health dept has to evolve and strengthen local health workers like the PHWs (the current PHW programme is only a half step) as a major solution to this problem.

FRU UNDERDEVELOPED

The district has a district hospital, but it is not fully developed as an FRU. Under the MHSDP project, an FRU is coming up. At this moment there is no EOC FRU except at Dhule. The RH system is also weak and can not handle EOC. The Govt will have to do special efforts to develop EOC and pediatric services at RH and the most crucial input will be honest specialists to work in these situations. For the time being the GOM should even appeal to Medicine Sans Frontiers or Mission hospitals in India (like CHAI-CMAI or Ramkrishna mission) to provide specialists and start the RH services. In the long run, GOM needs appropriate posting policies for PG doctors to ensure that they spend limited but time in difficult areas and work effectively.

3. DOCUMENTS STUDIED

NANDURBAR

	CHILD DEATHS
1	Blockwise child deaths
2	Infant deaths at Molgi
3	Reports of infant deaths-Report of PHC Horafali
4	Verbal autopsy of child deaths (see table)
5	IV with MP Molgi PHC
6	Infant deaths in Somaval settlement
7	Story of ARI case-from Horafali
	GENERAL ISSUES
8	List of PHCs & RH
9	Indoor and outdoor services of RH Mhasavad (August 2003)
10	List of medicines at a PHC
	FOOD NUTRITION AND ICDS
11	TRAI doc on tribal land issues
12	PDS survey in some villages by NGO Loksamnvyaya
13	Report on crop destruction by forest officers
14	ICDS report of district MIS
15	Malnutrition admissions in RH Mhasavad
16	Grades at AW-before and after NGO intervention
17	Grades in AW Temli
18	IV with AWW Temli
19	Weight discrepancies at khatwani AW
20	IV with AWW at Lonkheda
21	IV with AWW Khatwani
	FAMILY WELFARE
23	District MIS on FW Aug 2003
	MCH at district level
24	District MCH report
25	Neonatal/infant/child deaths blockwise
26	MMR inquiry report
27	Newspaper extracts
28	Vital stat report: district Health Stat
29	Interview with District Stat officer
30	TRTI Doc on malnutrition deaths
31	About Action Research Programme--IV with DTT PHN
32	ANC card GOM
33	ANC Card UNICEF
34	Interview with PHN of district
35	Action Research Project doc
36	MCH at Block and PHCs
37	FGD with MOs at RH Akkalkuwa
38	Indoor case paper of birth from Mandana PHC

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39	MIS of PHC Mandana
40	MIS of PHC Horafali
41	IV with MO PHC Mandana
42	IV with PHC docs at Horafali
	Subcenter and ANM
43	ANC register at a SC/ANM-last month's report
44	Sheet of instructions for ANMs -ANC register
45	ANC weight series
46	IV with ANM & TBA Khatwani
47	IV with ANM Lonkheda SC
48	A PNC visit
	At the Village
49	Story of a stillbirth/Neonatal death
50	IV with TBA at Lonkheda
51	IV with TBA Horafali
52	FGD with TBAs at Kundi
53	IV with TBA Horafali
54	IV with PHW Topan Pimpri
	Malaria
55	Malaria report of district
	TRAINING
56	DTT report of district
	NGO
57	IV with NGO Loksamanvaya
	PMP
58	Interview with PMP
59	Map of Nandurbar
	Other documents
60	Vanvasi Vikas: by Vanvasi Kalyan ashram
61	Human Development Report : Maharashtra
62	RCH report by PF India New Delhi
63	TRTI report on Nandurbar child deaths

YAVATMAL DOCUMENTS

	CHILD DEATHS
1	Blockwise child deaths - DSO
2	Blockwise child deaths - ICDS
3	Causes of Death, Yavatmal District March 2002
4	Cause of Death Report, Waradh PHC 1999 - 2003
7	Interview with the mother for an infant death
	GENERAL ISSUES
8	Government Health Facilities
9	Functioning Staff Position of ICDS August 2003
10	List of medicines at a PHC
11	Vital Statistics of Yavatmal District
	FOOD NUTRITION AND ICDS
12	FGD with parents of ICDS children at Rampur
13	ICDS Reports March 2002, 2003 - Proforma
14	IV with Deputy CEO, Child and Women's Development
15	ICDS report of district MIS
16	interview with a pediatrician
17	Interview with the mother of a marasmic baby of Murzadi, Sawargad PHC
18	Gradation Register, Murzadi (S) Anganwadi, September 2003
19	IDI with AWW, Sawargad
20	Interview with AWW Murzadi (S)
21	IV with AWW Khatwani
	FAMILY WELFARE
22	District MIS on FW June 2003
	MCH at district level
23	District CSSM Report, March 2003
24	Neonatal/infant/child deaths blockwise
25	Interview with PHN of district
26	Interview with PHN of district
27	Vital stat report: district Health Stat
28	ANC card GOM 1 & ANC card GOM 2
	MCH at Block and PHCs
30	FGD with MOs at RH Akkalkuwa
31	In-patients Register at a Rural Hospital, Yavatmal district
32	MIS of PHC Sawargad
33	MIS of PHC Rampur
34	MIS of Waradh PHC
35	IV with MO PHC, Sawargad
	Subcenter and ANM
36	ANC register at a SC
37	<i>Mata Bal Sarakshan</i> a Manual, Ministry of Human Resource, GoI, 2003.
38	ANC weight series at Sawargad
39	IV with ANM Lonkheda SC
	At the Village
40	Interview with the mother about of a stillbirth/Neonatal death
41	IV with the TBAs at Rampur

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42	FGD with Dais in presence of ANM - Tekdi, SC Lasina, Savargad PHC
	TRAINING
43	Training Report
44	Kolam Survey
45	IV WITH MO DTU
	PMP
46	Interview with PMP
47	Map of Yavatmal

JALNA DOCUMENTS

Level	Record, Report
District Health Office	MIS, MCH Report, PHC Report, PHC medicine list, Special survey, DOS
Women's Hospital	COD Analysis 2002, Indoor statistics
RH	IPD registers, OPD registers
ICDS office	ICDS reports, Vital Statistics
PHC	MIS reports, OPD register, ANC (R-15, R-20) Registers, Infant death report, referral slip yellow and red
SC	ANC (R-15, R-20) Registers, MCH cards, Training manuals
AW	Growth Charts, Gradation register, Supplementary feed distribution register, monthly reports Training manuals

- RCH report 2002-3 and FW report 2002-3
- Family welfare report