Summer Training at

UNICEF
Rajasthan

Study on Infant Deaths in PHC-Jasol

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Post Graduate Diploma in Hospital and Health Care Administration
2012-2014

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Certificate

This to certify that VENKATESH IRUGULAPATI has successfully undergone his summer training from 08 April 2013- 08 June 2013 in UNICEF, Rajasthan. The topic of his project report was "Study on Infant Deaths in PHC Jasol". The candidate has successfully carried out the mentioned studies assigned during his summer training from 08 April 2013 – 08 June 2013 and his approach towards the study was sincere, scientific and analytical.

We wish him success in all his future endeavors.

DR SANTOSH KUMAR
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Acknowledgement

I would like to express heartfelt gratitude to UNITED NATIONS CHILDREN'S FUND, Jaipur for providing me the opportunity to work in such wonderful organization and for making all the facilities available and giving the support in every way for completion of internship.

I would like to take the opportunity to express great indebtedness to Dr.ANIL AGARWAL, Health specialist (UNICEF) without whom this training could be possibly never been accomplished. I would like to extend my sincere regards for Dr. Apurva Chaturvedi (UNICEF) Health Officer, Mr.Vinod Rathore (UNICEF)Mr.Kshitij Gaurang consultant(M&E) Directorate, Medical and Health Services, Rajasthan who despite other preoccupations and busy schedule was there to guide me on my project.

I would to thank Dr. Santosh Kumar, Institute of Health Management Research, and Jaipur for their constant motivation and valuable guidance.

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INTRODUCTION TO ORGANIZATION

UNICEF is driving force that helps build a world where the rights of every child realized. UNICEF has a global authority to influence decision- makers, and a variety of partners at grass root level to run the most innovative ideas into reality. That makes it unique among world organizations, and unique among those working with the young. UNICEF has been working in India since 1949. The largest organization in the country. UNICEF is fully committed to working with the government of India to ensure that each child born in this vast and complex country gets the best start in life, thrive and develops to his or her full potential.

The challenge is enormous but UNICEF is well placed to meet it. The organization uses quality research and data to understand issues, implements new and innovative intervention that address the situation of children, and works with partners to bring those innovations to fruitarian.

What makes UNICEF unique in India is its network of 13 states offices. These enable to organize to focus attention on poorest and most disadvantaged communities, alongside its work at the national level.

UNICEF uses its community level knowledge to develop innovative intervention to ensure that women and children are able to access basic services such as clean water, health visitors and education facilities, and that these services are of high quality. At the same time UNICEF reaches out directly to families to help them to understand what they must do to ensure their children thrive.

UNICEF also wants them to feel a sense of ownership of these services. That same knowledge and interface with communities enables the organization to tackle issues that would otherwise be difficult to address: complex factors that result in children working, or growing treat that HIV/AIDS poses to children.

UNICEF knows that key to address these challenges are its partnership with sister UN agencies, voluntary organizations active at the community level, women's groups and donors.

The organization also works with an array celebrities, including Indian cricket team and leading actors from India film industry, as well as hundreds of thousands of unnamed volunteers who tirelessly give their time and influence to ensure that together, they are able to help every realize his/her full potential.

MISSION OF UNICEF

- UNICEF is mandatory by UN general assembly to advocate for the protection of children rights to help meet their basic needs and to expand their opportunities to reach their full potential
- UNICEF is guided by the convention on the rights of child and strives to establish children's rights as enduring ethical principles and international standards od behavior towards children.
- UNICEF insists that survival, protection and development of children and universal development imperatives that are integral to human process.
- UNICEF mobilizes political will and material resources to help countries, particularly developing countries ensure a first call for children and to build their capacity to form appropriate policies and deliver services for children their families.
- UNICEF is committed to ensuring special protection for the most disadvantaged children victims of war, disaster, extreme poverty, all forms of violence and exploitation and those with disabilities.
- UNICEF responds in emergencies to protect the rights of children. In coordination with UN partners and humanitarian agencies, UNICEF makes its unique facilities for rapid response available to its partners to relieve the suffering of children and those who provide their care.
- UNICEF is non-partisan and its cooperation is free of discrimination. In everything it does the most disadvantaged children and the countries in greatest need have priority.
- UNICEF aims, through its country programmers, to promote the equal rights of women and girls and to support their full participation in the political, social, economic development of their communities.

Executive Summary

The infant mortality rate has been recognized as a summary index of socio- economic development of a region. This recognition has spurred international organizations and national governments to intensify their efforts to reduce the level of infant mortality and promote greater child survival. The tenth and eleventh Five Year Plan of India have also aimed at national wide programmers in this direction as the government has adopted the Millennium Development Goal of reducing the IMR. It therefore becomes imperative to explore the underlying socio-cultural, demographic, economic, medical and Administrative factors that influence the status of infant mortality at a place.

An analytical framework is specified for underlying the determinants of infant mortality. It distinguishes between determinants at two levels- via status of ANC and place of delivery and observes the effect of various socio demographic influences at villages, household and individual level on them.

The present analysis of data clearly demonstrates the importance of both medical and non-medical factors for explaining the observed infant mortality in rural India. The quality of ANC services and poverty, are the two important determinants of neonatal mortality and the quality of PNC services and village level availability of medical facilities are the two important determinants of post neo natal mortality. The need of behavior change and effective communication also came out to be the important influencers along with simple preventive medical interventions. To this end the present paper is an attempt to understand the causes of infant mortality.

Review of Literature

Way back in sixties Bourgeois-Pichat (1964) indentified two types of factors viz. 'endogenous' and 'exogenous' that affect infant mortality. Exogenous factors of infant mortality are dependant on environment in which an infant is exposed and include deaths to infants due to infectious, parasitic and respiratory diseases. Such causes normally occur in the post-neonatal period (1 to 11 months of age of infant) and they are easier to control. On the other hand, endogenous causes of mortality are more biological in nature and include deaths due to congenital malformations and birth process. They occur in the neonatal period (less than 1 month of age of infant) and are rather difficult to control.

Mosley and Chen (1984) provided an analytical framework for child survival in developing countries. They grouped the proximate determinants into five categories viz. maternal factors (age, parity and birth interval); environmental contamination (air, food/water etc.); nutrient deficiency; injury (accidental, intentional); and personal illness control (preventive measures and treatment).

Gandotra and Das (1988) latter categorized the underlying factors behind the immediate causes of infant deaths into five broad groups: demographic factors; socio-economic factors; environmental, sanitation and hygienic factors; nutrient availability factors; and medical care factors.

Pandey et. al. (1998) while analyzing the NFHS-1 data considered child's year of birth, child's sex, mother's age at child birth, residence, mother's literacy, religion – caste/tribe membership, mother's exposure to mass media, availability of toilet facility, type of cooking fuel and ownership of goods scores as the covariates of infant mortality.

INTRODUCTION OF STUDY

Of the estimated 130 million infants born each year world-wide (1), 4 million die in the first 28 days of life. Three-quarters of neonatal deaths occur in the first week, and more than one-quarter occur in the first 24 hours (1, 2). Almost all (99%) neonatal deaths arise in low-income and middle-income countries [1, 2]. In India alone, around one million babies die each year before they complete their first month of life, contributing to one-fourth of the global burden [1, 3]. The neonatal mortality rate in India was 32 per 1000 live births in the year 2010, a high rate that has not declined much in the last decade [4, 5]. Urban-rural differences in neonatal mortality exist with the mortality rates higher by 50% in rural (42.5/1000 live births) compared to urban (28.5/1000 live births) areas, as per the National Family Health Survey (NFHS-3) [6]. Neonatal deaths account for 40% of deaths under the age of 5 years worldwide. IMR is regarded as an important and sensitive indicator of the health status of a community. It also reflects the living standard of the people and the effectiveness of interventions for improving maternal and child health. Multiple factors related to social and economic conditions, health care and environment have a significant role to play on childhood mortality and improving childhood mortality is a national priority. India is one of the ten countries, along with China, Democratic Republic of Congo, Pakistan, Nigeria, Bangladesh, Ethiopia, Indonesia, Afghanistan, and Tanzania that account for more than 65% of all intrapartum related neonatal deaths [9]. Despite the recognition of neonatal survival as a key to child survival, poor progress in neonatal survival in India poses concern regarding attainment of the fourth Millennium Development Goal (MDG) target, that is, to reduce under-5 child mortality by two-thirds by 2015.

RATIONALE

In spite of nation widespread propagation of program to popularize safe motherhood practices and institutional deliveries to reduce the number of neonatal and child death, the health authorities have been unable to reduce this number beyond a point, through there has been study decline. This has lead to frustration among health authorities and even the community for not knowing the missing link in between that hampers eradication objectives despite a highly evolved program.

Secondly not much effort has been made to analyze the nonmedical factors influencing the mortality status which can indeed reveal missing link to the problem.

The present study tries to see the impact of some of these covariates on infant deaths in Jasol PHC, Balotra Block of Barmer district. The probable inferences of the study are also based on general observation and Quantitative data collected during field visit.

OBJECTIVE

- To determine causes of death of same age group

METHODOLOGY

Study site:

District: Barmer

Block: Balotra, Jasol PHC

Study design:

This is cross sectional study, which is quantitative in nature.

Sampling Method:

Sample size:

Infant deaths in Jasol PHC with in 12 month period i.e. from May 2012 – April 2013.

Study technique:

Quantitative data was collected by Face to Face interview with the respondents.

Study Tool:

A structured verbal autopsy questionnaire was used to find out causes of infant deaths.

Data Collection: Based on study design, sampling method quantitative data was collected under Jasol PHC. Primary data was collected with the help of fixed verbal autopsy questionnaire for infant deaths and all the data collected was triangulated to have more clarity on the findings at the time of analysis. The study maintained research ethics throughout. Data entry and its analysis were done with help of Microsoft Excel.

FINDINGS:

Age and Sex Wise Distribution of Infant Deaths

Fig 1

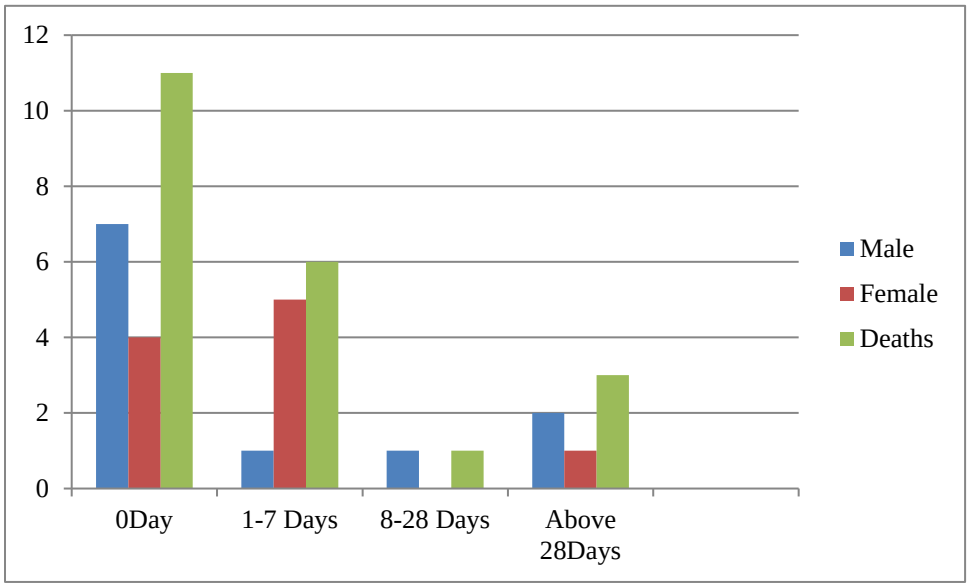


Fig.1 shows infant mortality of male is more than female with in first few hours of birth. In Early neonatal phase female mortality is very high than males and in Neonatal and Post neonatal phase male deaths are more vulnerable than females within first one year of life. In spite of increasing in institutional deliveries we can observe 80% of deaths occur in early neonatal phase.

Age Wise Distribution of Mothers who's Infants Died

Fig: 2

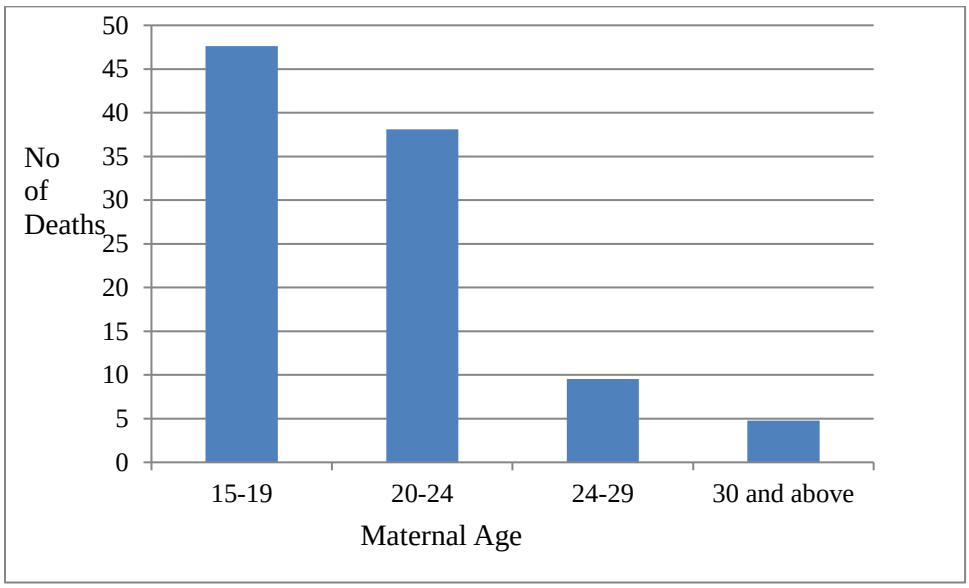


Fig 2 reveals that the infants of teen aged mothers had higher risk of dying than the infants of mothers in the age bracket 30 and above. On the other hand, the infant mortality was high in the age group 15-19 of mothers and went on declining with the increase in the age of mother and the overall level of infant mortality is low and it is reverse J-shape pattern.

Infant Death by Birth Order

Fig: 3

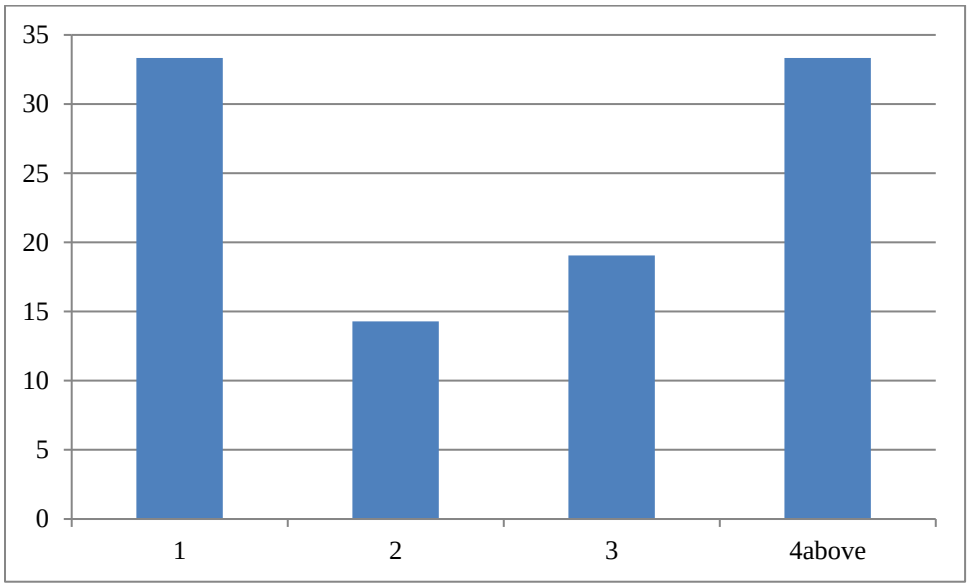
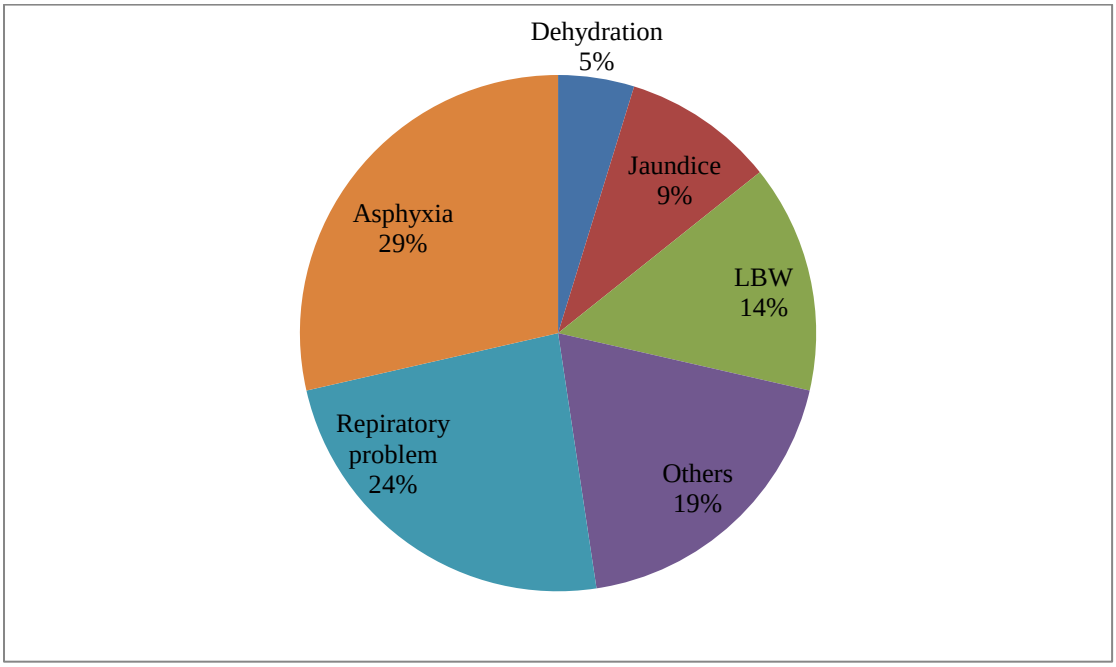


Fig 3 clearly delineates that the first birth had a much higher risk of dying than 2-3 births The risk of infant death among the births of order 2-3 was low. However, the risk of infant death again rises with the increase in parity. This variable, thus, seems to have an independent effect on the risk of infant mortality. The pattern of infant mortality by order of birth seems to follow a U-shaped curve. However, the percentage decline in the level of infant mortality from birth order 1 to 2-3 as well percentage increase in the level of infant mortality from birth order 2-3 to 4 and over is much sharper.

Cause of infant Deaths

Fig: 4



The major cause of infant deaths during Early Neonatal (fig 5) was Birth Asphyxia (29%), Respiratory problem (24%), prematurity including low birth weight (14%), Neonatal Jaundice (9%) and others (19%) and Dehydration (5%).

Results:

During the study period a total of 20 deaths of (0-1yr) age group were found. Of the infant deaths about 17(81%) where in early neonatal phase, whereas 1(4.5%) in neonatal phase and 3(14.5%) in post neonatal phase. They were more male deaths in early neonatal and neonatal phase.

Table 1 Distribution of infant mortality according to age group

Age at Death	Deaths	
	No	%
0-1 days	11	52.3
2-7 days	6	28.5%
8-28days	1	4.5%
28- 1 yr.	3	14.5%
Total 0-1 yr.	20	100%

Table2: Causes of Early Neonatal Death

Cause of Death	Early Neonatal Death	
	No:	%
Asphyxia	6	28.5
Respiratory problem	5	23.8
Low Birth Weight	3	14.2
Dehydration	1	4.7
Others	2	9.5
Total	17	81

Table3: Causes of Neonatal and Post Neonatal Death

Cause of Death	Neonatal, Post Neonatal	
	No	%
Jaundice	2	9.5%
Others	2	9.5%
Total	4	19%

Discussion:

This study is to attempt to find out the causes of death by mean of verbal autopsy. The diagnosis mainly symptom based as per information collected by verbal autopsy. It was seen in present study that 50%of infant deaths occur in first 24 hours of birth and 29% of infant death takes in early neonatal phase and 14.29% in Post neonatal phase. In spite of increasing in institutional deliveries we can observe 80% of deaths occur in early neonatal phase and that IMR was higher in young mothers (15-20 years) and in those aged 30 years and above. It shows that the infant is at risk of dying more if the age of mother at delivery is on either extreme.

Infant mortality rate was high among 1st and 4th order births compared to the middle orders. The infant mortality rate was inversely proportional to the interval between the deceased child and their sibling/s and thus pointing towards advocacy for a two year gap between pregnancies. The gap would allow the mother to replenish her stores exhausted in the previous pregnancy. Moreover the child would enjoy the full support and care by the mother until infancy is reached.

The major cause of infant deaths during Early Neonatal (fig 5) was Birth Asphyxia (29%), Respiratory problem (24%), prematurity including low birth weight (14%), Neonatal Jaundice (9%) and others (19%) and Dehydration (5%).

Limitations:

The verbal autopsy procedure is to be administered on either the mother or the relatives of the deceased. Full information might not be gathered if the interviewer goes at the house immediately after birth because of an environment of sorrow and grief. If one interviews too late, then there appears difficulty in recalling the events on part of mother. The exact timing of interviewing often becomes a difficult task.

Conclusion:

The burden of mortality among infants can be reduced by strengthening of Reproductive and child health programme, promotion of institutional deliveries, strengthening of referral system, early recognition of danger signs by health workers through training, health education regarding promotion of at least 2 years between pregnancies and improving the literacy status of the community as a long term goal.

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Annexure

INFANT DEATH
VERBAL AUTOPSY QUESTIONNAIRE

Age of child:			
1.1	Name of child		
1.2	Sex of the child	1. Male 2. Female	☐
1.3	When was the born ?	___ ___ / ___ ___ / ___ ___ ___ ___ (D D / M M / Y Y Y Y)	
1.4	Address of child's usual residence	_____ / _____ / _____ / _____ (village / block / district / state)	
1.5	Where was child during his / her fatal illness?	1. own home 2. Relatives home 3. formal health facility 4. Other *(specify* _____*)* 8. Don't know	☐
1.6	What is the address of this place (where child stayed during his/her fatal illness)?	_____ / _____ / _____ / _____ (village / block / district / state)	
1.7	Name & Relationship of head of household of this place (where child stayed during his/ her fatal illness)	1. Father 2. Grand Father 3. Relative's House 4. Other *(specify* _____*)* 8. Don't know	☐
1.8	Date of child's death	___ ___ / ___ ___ / ___ ___ ___ ___ (D D / M M / Y Y Y Y)	
1.9	How many years of school did child's mother complete?		___ ___ Years
2.0	How many years of school did child's father complete?		___ ___ Years
2.1	Is the marriage between the parents consaignous	1. Yes 2. No 8. Don't know	☐
2.2	Occupations of Mother ? (Read out)	1. House wife 2. employed	

		4. unemployed 5. working in own land 6. others (specify)…… 8. Don't know	☐
2.3	Occupations of Father? (Read out)	1. Employed 2. Laborer 3. unemployed 4. working in own land 5. others (specify)…… 8. Don't know	☐
2.4	What is the family's religion?	1. Hindu 2. Muslim 3. Christian 4. Other 8. Don't know	☐
2.5	What is the family's caste?	1. SC 2. ST 3. Other 8. Don't know	☐
2.6	Does the family have its own toilet?	1. Yes 2. No 8. Don't know	☐
2.7	Does the house has electricity?	1. Yes 2. No 8. Don't know	☐
2.8	Does the family have a BPL card?	1. Yes 2. No 8. Don't know	☐
2.9	Do you know about the benefits of the BPL card?	1. Yes 2. No 8. Don't know	☐

Pregnancy History :

1	What was the age of mother at the time the baby died?		___ ___ years
2	How is the mothers health now?	1. Healthy 2. Ill 3. Not alive 8. Don't know	☐
2.1	If ill or not alive write in details about the mothers condition?		
3	Did mother take any medications during pregnancy? (excluding IFA Tablets & TT inj.)	1. Yes 2. No 8. Don't know	☐
3.1	If yes, specify		
4	How many births, including stillbirths, did the mother have before this baby?		___ ___
4.1	How many live births mother had before this baby		___ ___
4.2	Did any babies die before the current baby	1. Yes 2. No 8. Don't know	☐
4.2 a	If yes, specify the reasons for deaths		
4.3	What is birth order of the baby		___ ___
4.3 a	If 2 or More spacing between the previous pregnancy and the pregnancy with current baby		___ ___ months
5	How many months did the current pregnancy last?		___ ___ weeks

6	Was she ever told by a doctor or nurse that she had any of the following illnesses during pregnancy?	1. Anemia.....	Yes 1. □	No 1. □	DK 1. □
		2. Heart disease	2. □	2. □	2. □
		3. Diabetes	3. □	3. □	3. □
		4. Cancer	4. □	4. □	4. □
		5. Hypertension (High blood pressers)	5. □	5. □	5. □
		6. Tuberculosis	6. □	6. □	6. □
		7. Epilepsy/ convulsion.....	7. □	7. □	7. □
		8. Other.....	8. □	8. □	8. □

		(specify other)	(_____)
7	If multiple births, what was the birth order of the child that died?	1. First 2. Second 3. third or higher 8. Don't know	☐
8	Did mother seek any antenatal care for the pregnancy from an ANM, nurse or qualified doctor?	1. Yes 2. No 8. Don't know	☐
9	*If yes* How many times did she receive antenatal care from an ANM, nurse or qualified doctor?	1. < 3 times 2. 3- 5 times 3. > 5 times	___ ___
9.1	what was the weight gain during pregenacy	1. < 9 kgs 2. 9-11 kgs 3. > 11 kgs 8. Don't Know	☐
10	Whether mother experienced any fetal movements ?	1. Yes 2. No 8.Dont know	☐
10.1	If yes Since when did she experienced fetal movements?		___ ___ weeks
11	How many IFA tablets mother Consumed?	1. Less than100 tablets 2. 100 tablets 8. Don't know	☐
12	Did mother receive TT injection during Pregnancy	1. Yes 2. No 8.Dont Know	☐
12.1	If yes, specify		
Delivery History :			
13	How long did labor last?	1. Less than 12hours 2. More than 12hours 8. Don't know	☐
14	Did mother have fever during labor or immediately after delivery?	1. Yes, 2. No 8. Don't know	☐

15	Was her liquor (amniotic fluid) foul smelling?	1. Yes, 2. No 8. Don't know	☐
16	Was liquor green colored ?	1. Yes, 2. No 8. Don't know	☐
17	How many hours after the leak was baby born?	1. Less than 12 hours 2. 12 hours or more 8. Don't know	☐
17.1	If 2 or 8 then Any medication given to mother for leak ?	1. Yes, 2. No 8. Don't know	☐
17.2	If yes specify	(Specify)	
18	Who attended the delivery/ labor?	1. Obstetrician 2. General doctor 3. Nurse 4. ANM 5. Trained Dai 6. Relative/friend 7. Herself 8. Don't know 9. Quack 10. Other (Specify) ……	☐
18.1	Where was the delivery conducted	1. Home 2. Govt. Hospital 3. Private Hospital 4. Others (specify)…… 8. Don't know	☐
19	How was the (baby delivered/ delivery attempted)? .	1. Spontaneous vaginal (no drugs) 2. Mechanically induced (forceful external pushing) 3. Induced with drugs 4. Forceps 5. Caesarean section 8. Don't know	☐
20	Which part of the baby came out first?	1. Head 2. Buttocks/Feet 3. Hand 4. umbilical cord 8. Don't know	☐
21	Was there excess bleeding on the day labor started?	1. Yes, 2. No 8. Don't know	☐
Condition Of The Baby Soon After Birth:			
22	At birth what was the size of the baby?	1. Smaller Than Normal 2. Normal 3. Larger Than Normal 8. Don't know	☐

23	What was the birth weight of the baby? (In first seven days)	1. >2500gms. 2. < 2500 –2000gms. 3. <2000-1500gms. 4. <1500gms. 8. Don't know	☐
24	Was the baby premature? (Less than 37 weeks)	1. Yes, 2. No 8. Don't know	☐

24.1	If yes , Write weeks of pregnancy	1. < 28 weeks 2. 28 –32 weeks 3. > 32 –37 weeks 8. Don't know	☐
25	What was the color of the baby at birth?	1. Normal 2. Pale/ Yellow 3. Blue 8. Don't know	☐
26	Did the baby cry after birth, even a little?	1. Yes, 2. No 8. Don't know	☐
27	Was the baby given assistance to breathe?	1. Yes, 2. No 8. Don't know	☐
28	Did the baby ever move hands & legs even a little?	1. Yes, 2. No 8. Don't know	☐
29	If the baby did not cry, breathe or move, was it born dead (STILL BORN)?	1. Yes, 2. No 8. Don't know	☐
30	Were there any signs of injury or broken bones?	1. Yes, 2. No 8. Don't know	☐
30.1	Where were the marks or signs of injury?		
Neonatal Illness History :			
31	Was baby breast feed ?	1. Yes, 2. No 8. Don't know	☐
31.1	If yes, how soon after the birth did baby	suckle ?	___ ___ minutes ___ ___ *hours* ___ ___ days
32	Was baby exclusive breast feeding ?	1. Yes, 2. No 8. Don't know	☐
33	If 2 or 8, what was given to the baby ?	1. Expressed breast milk, 2. Animal milk 3. Others (specify)	Yes No DK 1. □ 1. □ 1. □ 2. □ 2. □ 2. □ 3.(_____)
34	Did baby have convulsions	1.Yes 2.No	☐

		3.Don't Know	

35	If yes when did the baby become lethargic or drowsy?		___ ___
36	Did the baby have a fever?	1. Yes, 2. No 8. Don't know	☐
36.1	If yes how many days after birth did the baby have a fever?		___ ___
37	Did the baby become cold to the touch?	1. Yes, 2. No 8. Don't know	☐
37.1	If yes how many days after birth did the baby become cold to the touch?		___ ___
38	Did the baby have a cough?	1. Yes, 2. No 8. Don't know	☐
38.1	If yes, how many days after birth did the baby start to cough?		___ ___
39	Did the baby have fast breathing?	1. Yes, 2. No 8. Don't know	☐
39.1	If yes, how many days after birth did the baby start breathing fast?		___ ___
40	Did the baby have difficulty in breathing?	1. Yes, 2. No 8. Don't know	☐
40.1	If yes, how many days after birth did the baby start having difficulty in breathing?		___ ___
41	Did the baby have chest indrawing?	1. Yes, 2. No	☐

		8. Don't know	
42	Did the baby have grunting?	1. Yes, 2. No 8. Don't know	☐
43	Did the baby have flaring of the nostrils ?	1. Yes, 2. No 8. Don't know	☐
44	Did the baby have watery stools?	1. Yes, 2. No 8. Don't know	☐
44.1	If yes, how many days after birth did the baby have watery stools?		___ ___
45	Was there blood in the stools?	1. Yes, 2. No 8. Don't know	☐