

Achieving Millennium Development Goals on Maternal and Child health:

Lessons learnt from Gonoshayastha Kendra (GK) Programme Area

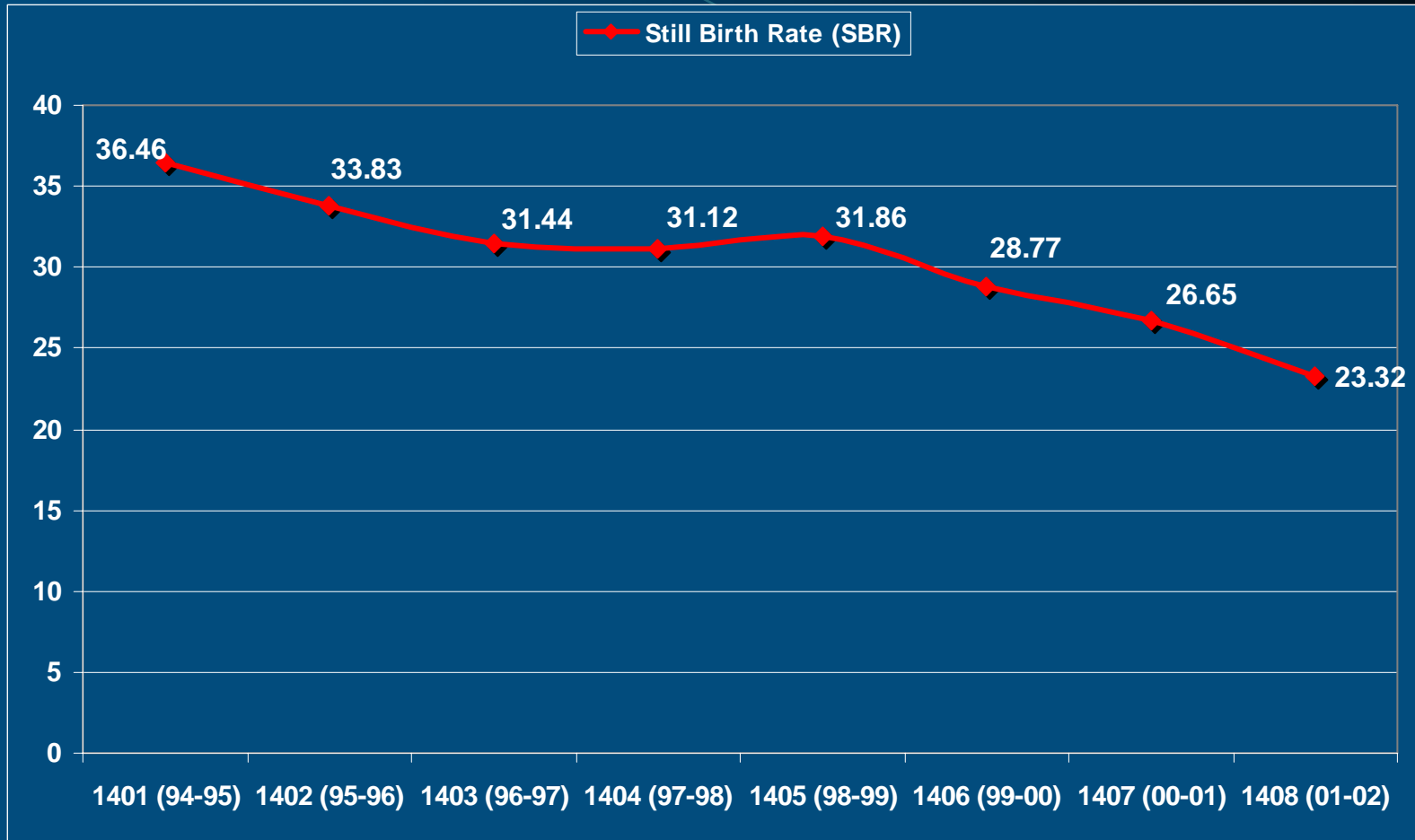
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Introduction

GK, the pioneer NGO in the health field, made its formal debut in Bangladesh, with a project in SAVAR Upzilla in 1972, aiming to improve the quality of life, particularly health of the rural masses by ensuring affordable health services. GK has come a long way since 1972, both in terms of coverage and achievements. During the last three decades and half, it has increased its coverage of health services, including reproductive and child health services, to 592 villages in 31 unions of 16 Upazilla in 11 districts. It is now one of the largest service providers in the health sector outside of the Ministry of Health and Family Welfare. During the same period, GK has made significant progress towards achieving some of the Millennium Development Goals (MDGs), particularly those related to maternal and child health. The purpose of the paper is to highlight these achievements and its underlying factors, particularly in reducing infant mortality using panel data. GK is well known for its paramedical training programme. GK also runs continuing training programs of existing traditional birth attendants (TBAs) to become trained traditional birth attendants (TTBAs). GK's local health committee is headed by an elected female Union Parishad member. GK provides a wide range of childcare and reproductive health services through a cadre of trained paramedics at village level. These services include, among other things: (i) registration of all pregnant women and births, (ii) regular follow-up of pregnant mothers for ANC and PNC services, and identify 'high risk mothers' for referral. (iii) monitor physical growth of neonates, (iv) promote the need for additional and balanced diet of pregnant mothers and new born , (iv) immunization of pregnant women against tetanus and children under age 1 against six major killers: Diphtheria and Whooping Cough (DPT), Polio BCG Measles and TT and (v) distribution of iron tablets among pregnant women

Figure: 1

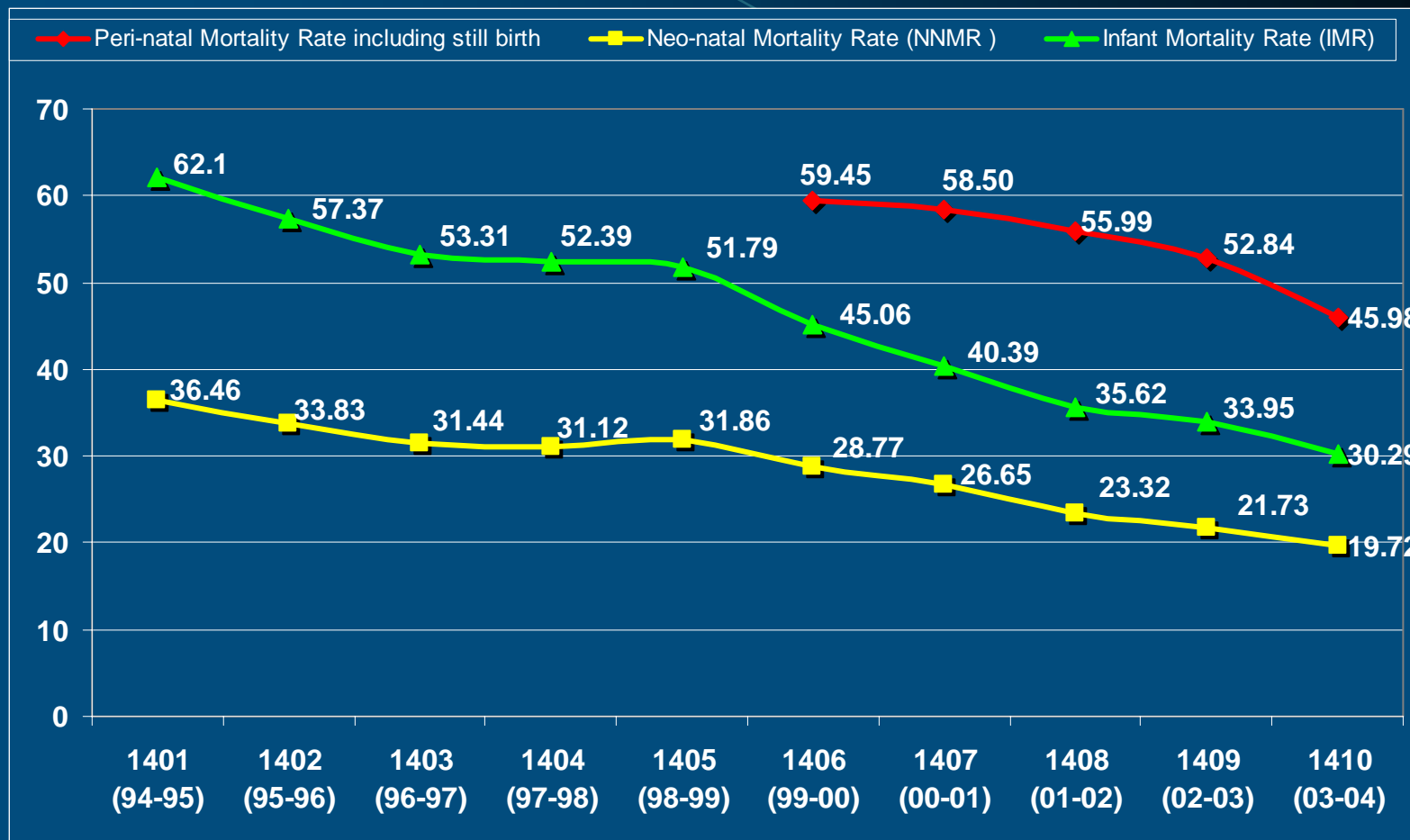
3-year Moving Averages of Still Birth Rates* for GK Program areas from 1400 – 1409 Bengali year) and 14 Apl. 1993 - 15 Apl. 2003.



Central year

Figure: 2

3-year Moving Averages of Peri-natal including still birth, Neo-natal and Infant Mortality Rates for GK Program areas from 1400 - 1411 (Bengali year) and 14 Apl. 1993 - 15 Apl. 2005.



Central year

Figure: 3

Infant Mortality Rate* (3-year Moving Average Method) for GK Program Area, from Baishak 1400 – Chaitra 1411 (i.e; 15 April 1993 – 14 April 2005), and ICDDR,B Program and Comparison Areas, from January 1993 – December 2003 and for the country as a whole.

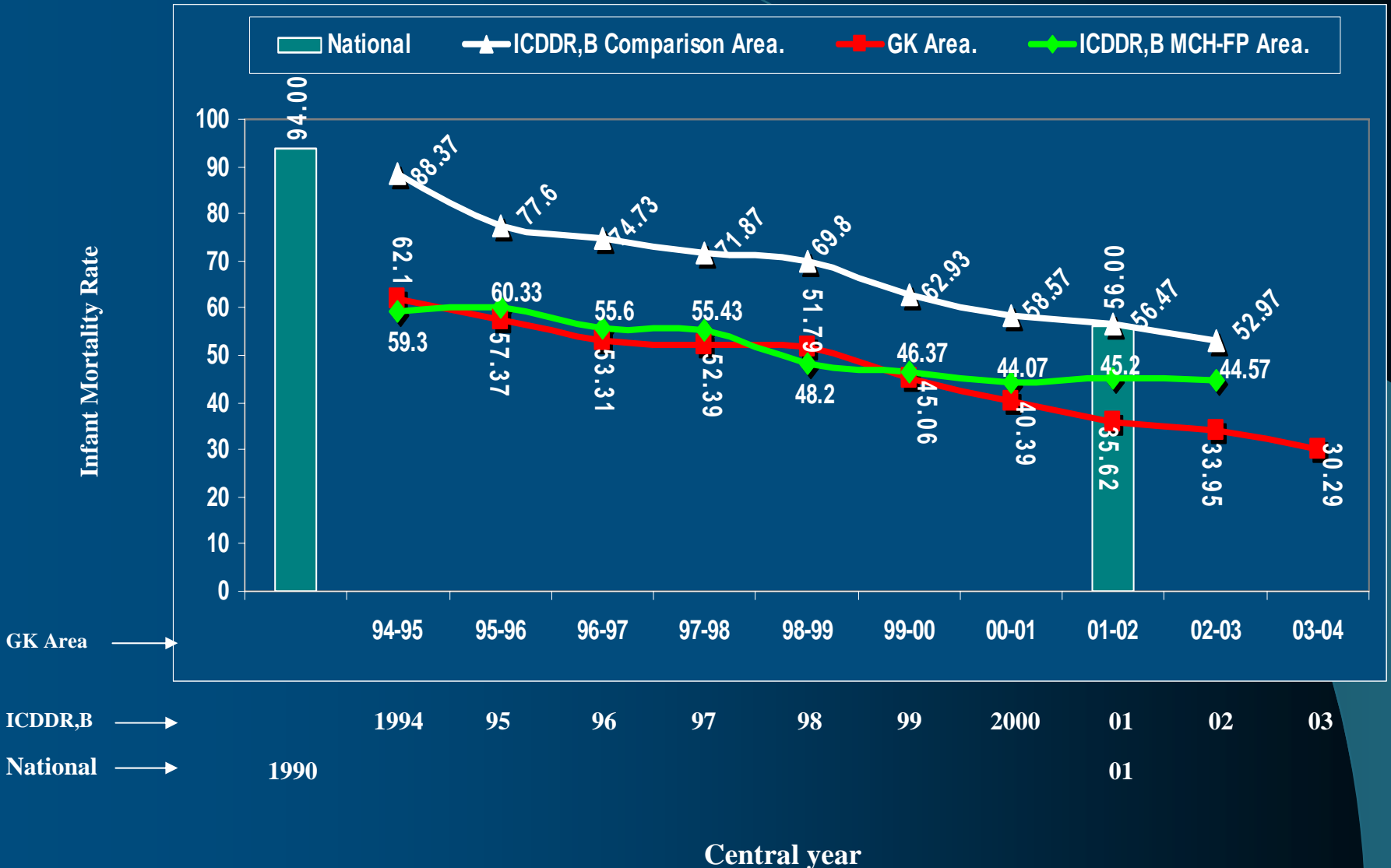
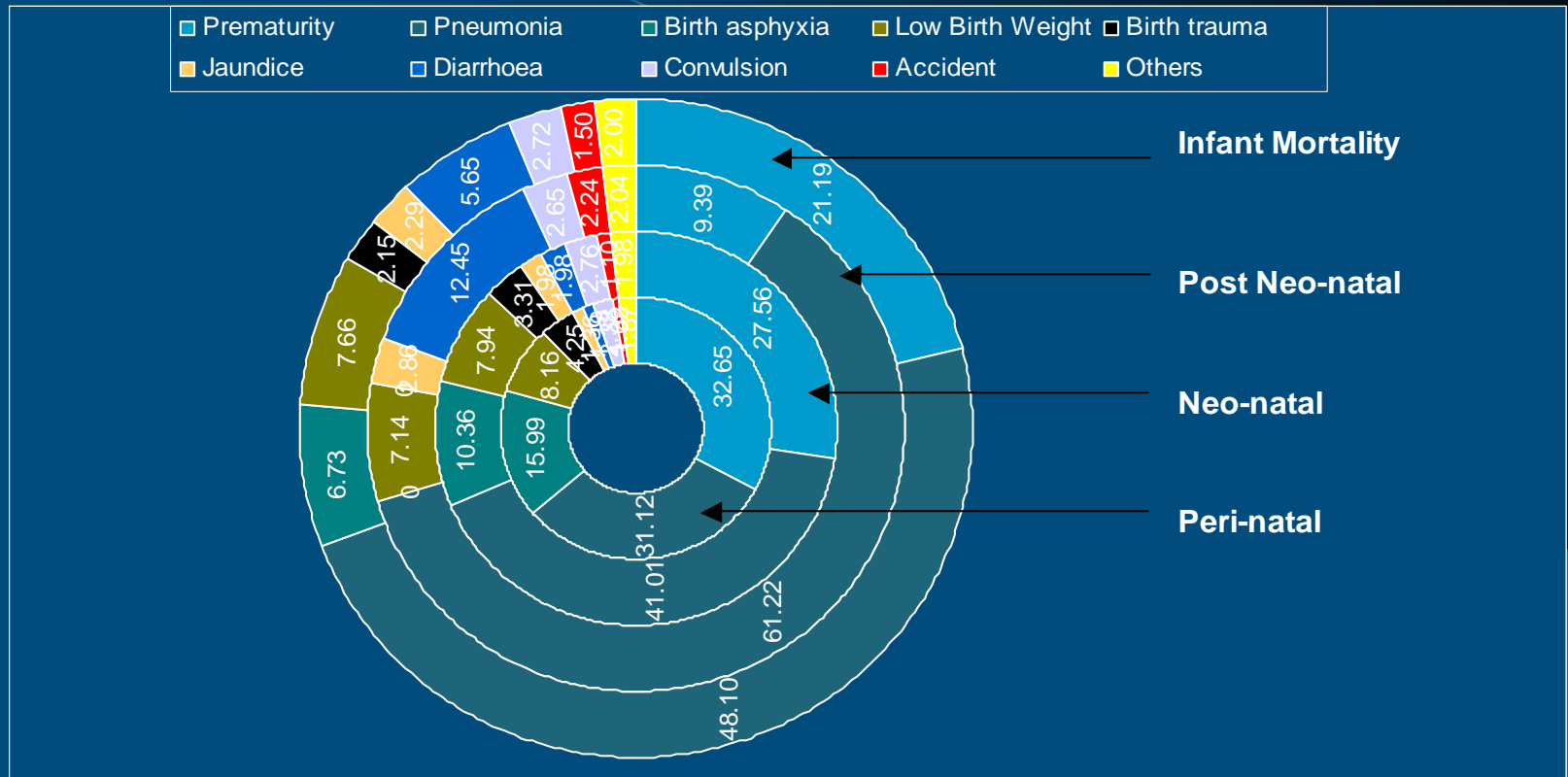


Figure: 4

Causes of Peri-natal (<1 week, i.e;between birth and end of the 7 days of life), Neo-natal (<1 Month, i.e;between birth and end of the 28 days of life), Post Neo-natal (1-11 Months, i.e;between 29 days of life and before the first birthday) and Infant Mortality (<1 year i.e;before the first birthday) Rate (per 1,000 live births) , 1409-1411 (2002-2005).



➤ Data in figure 4 shows that most infants (69%) die of pneumonia and pre-maturity, followed by low birth weight (8%), birth asphyxia (7%) and diarrhoea (6%). This overall finding also holds for both male and female children and different socio-economic groups.

➤ However, the rank order of the infant death varies at different stages of first year of life. For example, at neo-natal stage pre-maturity followed by pneumonia and birth-asphyxia are the major killers, while deaths at neo-natal stage are mostly attributable to pneumonia followed by pre-maturity. Post neo-natal deaths are mostly due to pneumonia followed by diarrhoea.

➤ Pneumonia emerges as the single largest cause of neo-natal and post neo-natal deaths, while pre-maturity, including low birth weight explains most of the pre-natal deaths. These overall findings also hold for both male and female children and different socio-economic groups.

Table: 1

Numerical and Percentage Distribution of Neo-natal Follow-up (visits) by GK Health Workers, Health Sub-center In-charge and Doctor and Time Interval of Visits, 2005.

Time Interval	GK Health Workers		
	Health Worker (%)	Health Sub-center In-charge (%)	Doctor (%)
0-48 hours	27.20	13.10	1.10
49-72 hours	27.60	17.30	1.30
73 hours-7 days	21.40	14.90	1.10
8 days- 29 days	9.50	9.60	0.80
Above 29 days	2.60	5.00	0.60
No Follow-up	11.70	40.10	95.10
Total %	100	100	100
N	16392	16392	16392

➤ Table 1 presents data on visits of neonates by different levels of GK health workers in the year 2004-05.

➤ It shows over 5 out of 10 neonates and nearly 9 out of 10 neonates were visited within 7 and 29 days respectively by GK field level health workers to monitor their health status, treat minor ailments and refer complicated cases to specialists/clinics.

➤ 6 out of 10 (60%) and 1 out of 20 neo-nates (5%) were also revisited by GK health sub-center in-charge and doctor respectively to follow-up and cross check the work of paramedics.

Table: 2

Logistic regression model of determinants of infant mortality (Odds

Independent variables	Odds Ratio	p > Z
Boy child	-	-
Girl child	1.07	0.212
Birth weight of the child		
Below normal	-	-
Normal	0.569	0.050
Age of the mother		
Less than 20	-	-
20-29	1.32	0.001
30-39	1.29	0.012
40+	1.35	0.219
Education of mother		
Some education	-	-
No education	1.20	0.001
Food security		
No	-	-
Yes	0.75	0.051

Figure: 6

Maternal Mortality Rates* in GK Programme Area for the Period 1400-1403 (1993-1997), 1404-1407 (1997-2001) and 1408-1411 (2001-2005).

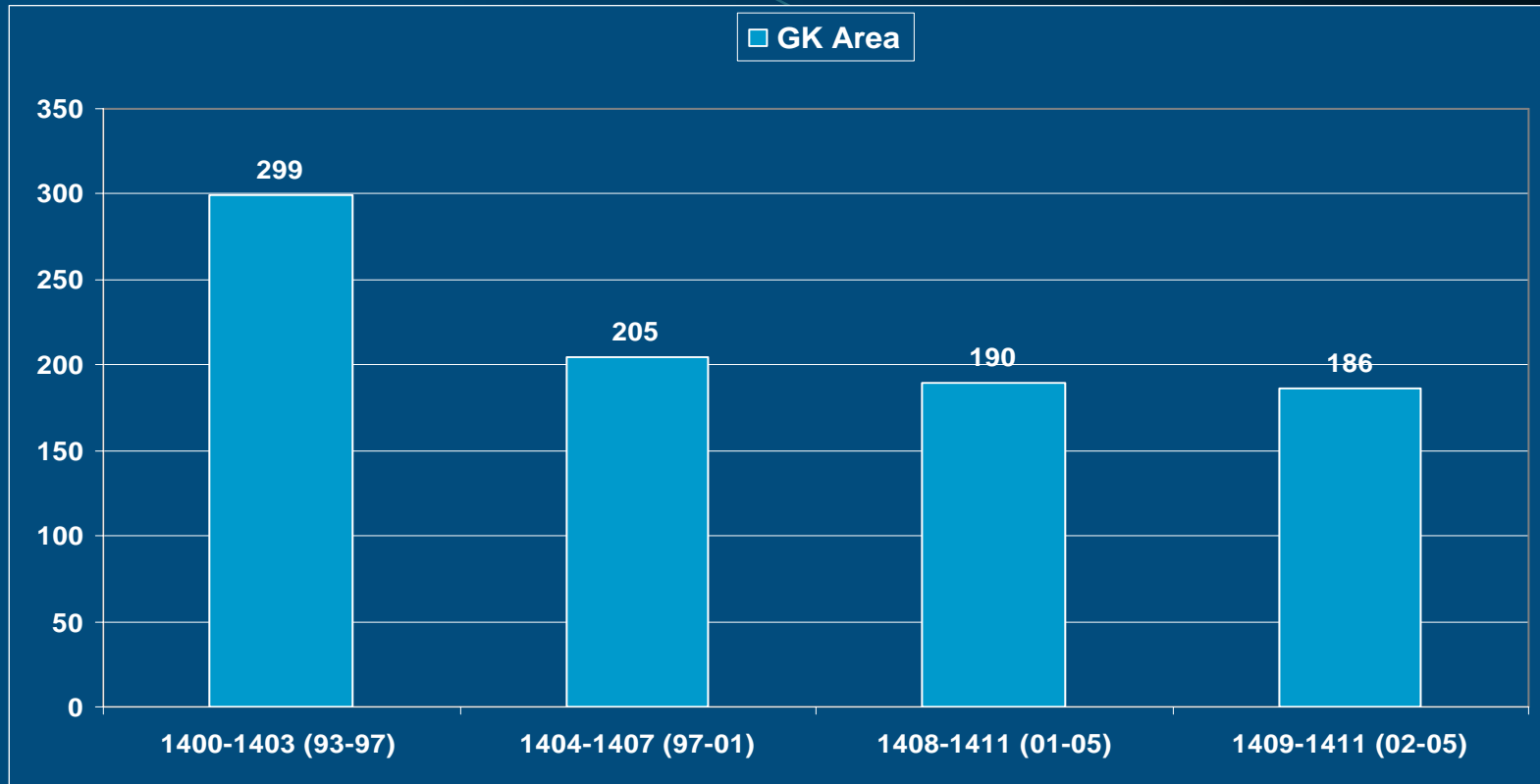
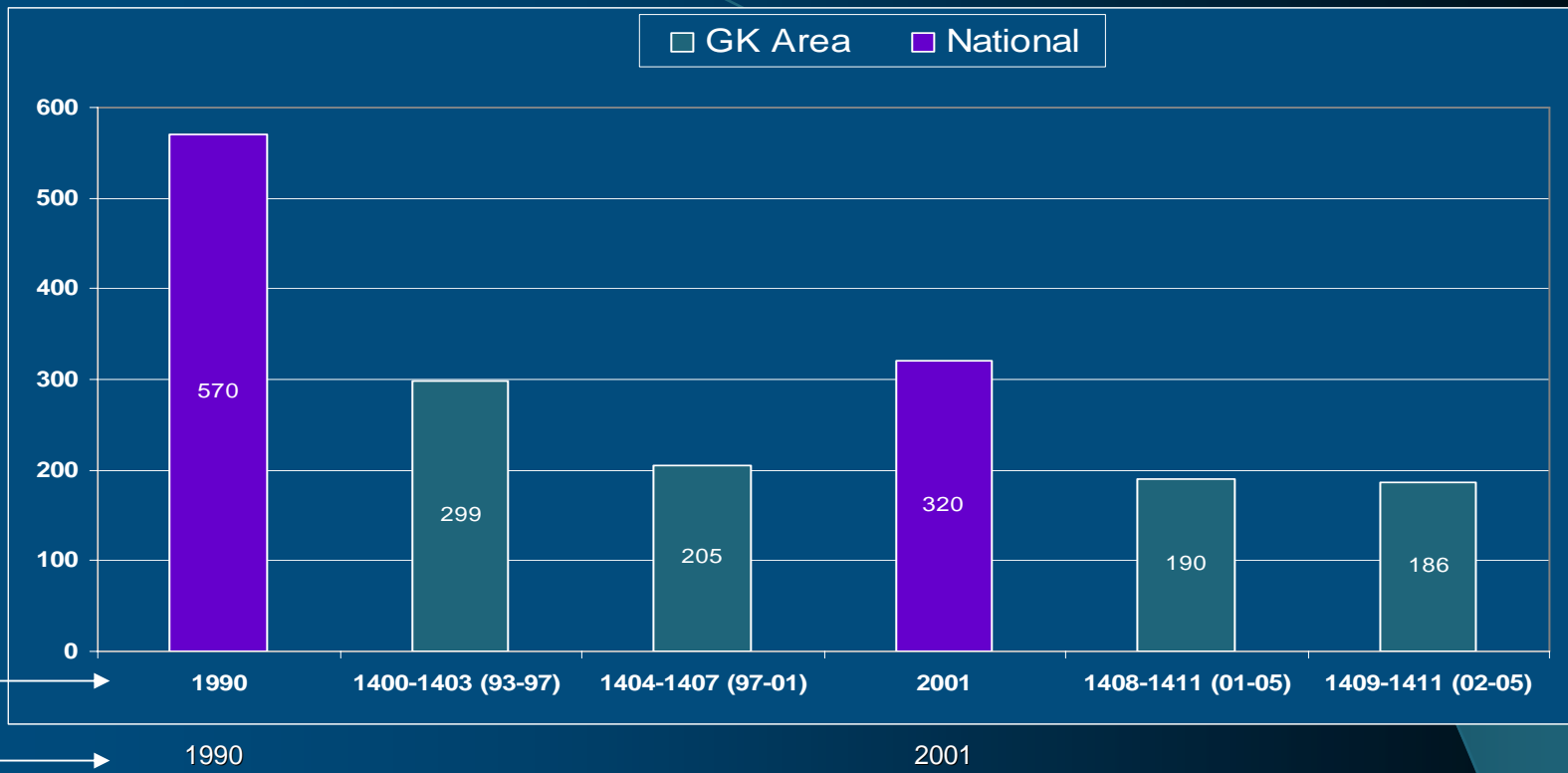


Figure 6 shows a considerable reduction in MMR by 37% & 38%, from about 300 per 100,000 live births during 1993-97 to 190 and 186 per 100,000 live births during 2001-05 and 2002-05 respectively in GK programme area. MMR is reduced to 177 per 100,000 live births in over 3 out of 5 (63.3%) villages, which were under the GK programme for last 10 years and above.

Figure: 7

Maternal mortality *rates in GK programme area and for the country as a whole for the period 1400-1403 (1993-1997), 1404-1407 (1997-2001) and 1408-1411 (2001-2005).

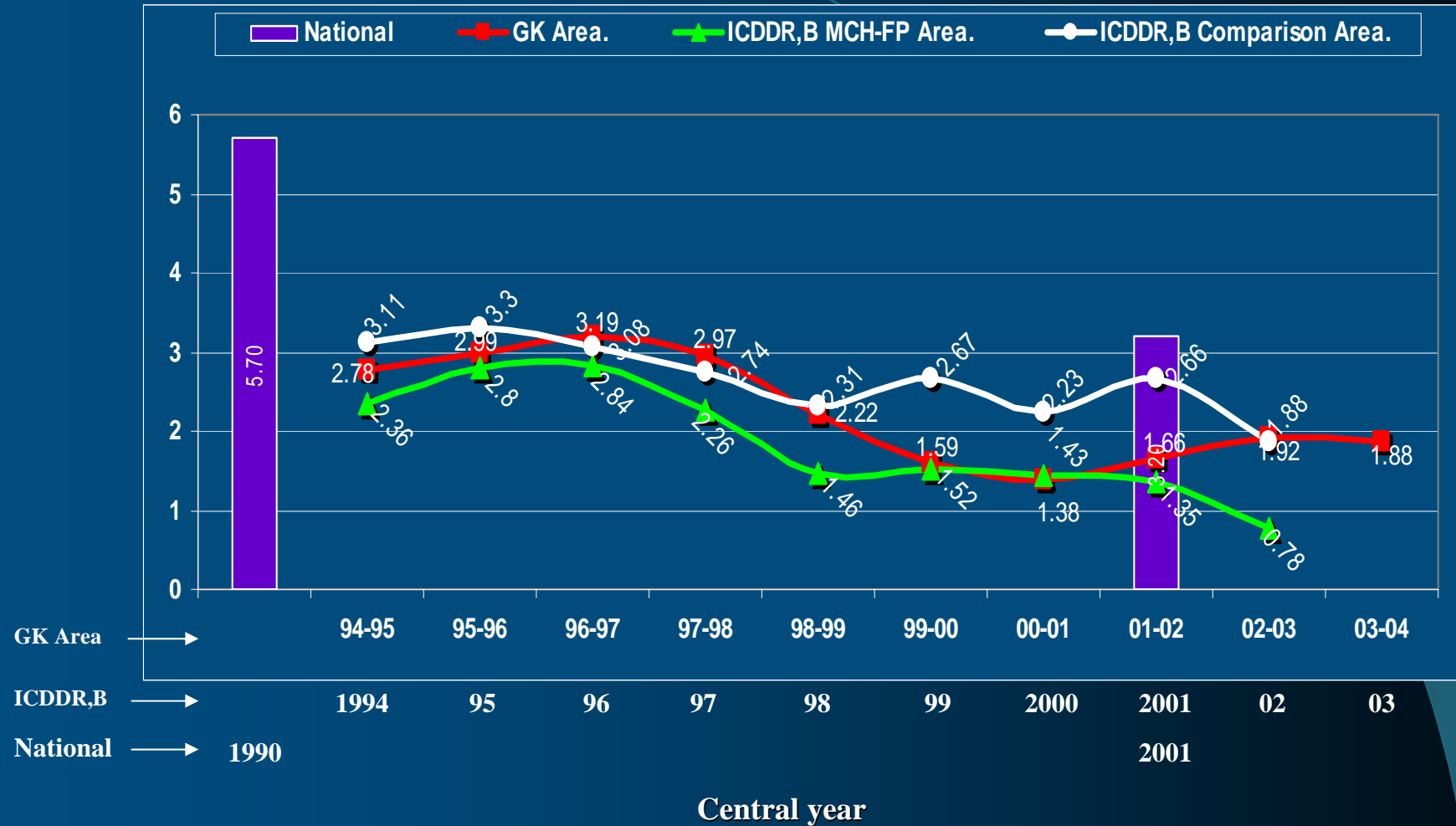


➤ MMRs in GK area during 1997-01 and 2001-05 were 36% & 41% lower than that of the national level in 2000-01. MMR in GK area during 2002-05 falls short of reaching Millennium Development Goal on MMR (143) in 2015 by only 23%, which is very much within the reach of GK.

* Rates per hundred thousand live births

Figure: 8

Maternal Mortality Rate* (3-year Moving Average Method) for GK Program Area, from Baishak 1400 – Chaitra 1411 (i.e; 15 April 1993 – 14 April 2005), and ICDDR,B Program and Comparison Areas, from January 1993 – December 2003 and for the country as a whole, 1990 and 2001.



How could one explain this success?

1. *Higher ANC Visit and Services*

- All pregnant mothers (100%) in GK area received ANC services during their pregnancies, compared to only 47% for the country as a whole.
- Only 21 % women of Bangladesh received 3 or more ANC visits, compared to 66% of women in GK area for the last pregnancy.
- 97% of women in GK area received TT vaccination, compared to 85% for the country as a whole for the last pregnancy.

2. *Identification and Follow-up of 'High Risk Mothers'*

- GK health workers identify 'High risk mothers' and closely monitor their health status and provide necessary follow-up services including treatment and timely referral of complicated cases to specialists/ health facilities. A similar arrangement is lacking at the national level.

3. *Social Auditing:*

- GK personnel attend funeral ceremony of the deceased woman and discuss with the participants of the ceremony the possible causes of maternal death and explore whether or not this death could have been avoided, and if so how? This has a huge social awakening impact.
- No such social auditing of maternal deaths is performed at the national level.

4. *Skilled/Trained Traditional Birth Attendants(TTBAs):*

- Although most births/deliveries (93%) in GK area took place at home, but most (87%) of them are attended by trained professionals such as trained paramedics and TBAs as well as doctors/nurses, compared to only 24% at national level.

5. *Social insurance*

- GK offers similar health care coverage under its health insurance scheme to all its clients irrespective of their purchasing capacity through progressive premium rate in which the charges for health services are differentially levied, according to one's economic position. This is to promote equity and equality in health care services.

Table: 3**Numerical and percentage distribution of causes of maternal deaths (N=86)**

Causes of death		Number	Percent of direct causes	Percent of all causes
Direct causes of death	Direct Complications of labour and delivery	48	68.57	55.81
	PPH with retained placenta	19	27.14	22.09
	PPH without retained placenta	9	12.85	10.47
	Obstructed labour	8	11.43	9.3
	Ruptured uterus	4	5.71	4.65
	Antepartum hemorrhage	8	11.43	9.3
	Pre-eclampsia / eclampsia	19	27.14	22.09
	Abortion	3	4.29	3.49
	Subtable Total	70	100	81.39
Causes of death		Number	Percent of indirect causes	Percent of all causes
Indirect causes of death	Anaemia	6	37.5	6.98
	Jaundice	4	25	4.65
	Cardiac failure	3	18.75	3.49
	Snake bite	1	6.25	1.16
	Acute diarrhoea	1	6.25	1.16
	Respiratory failure	1	6.25	1.16
	Subtable Total	16	100	18.6
Table Total		86	100	100

Figure: 9

Numerical and percentage distribution of causes of maternal deaths (N=86)

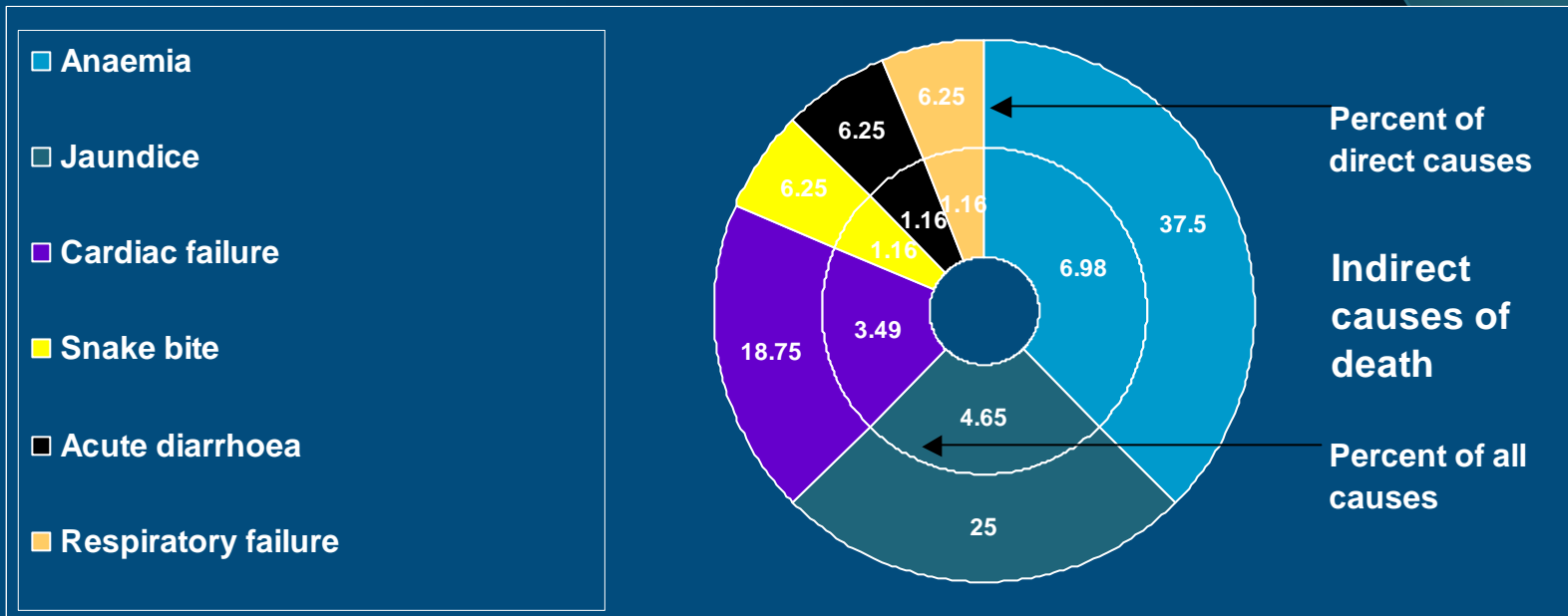
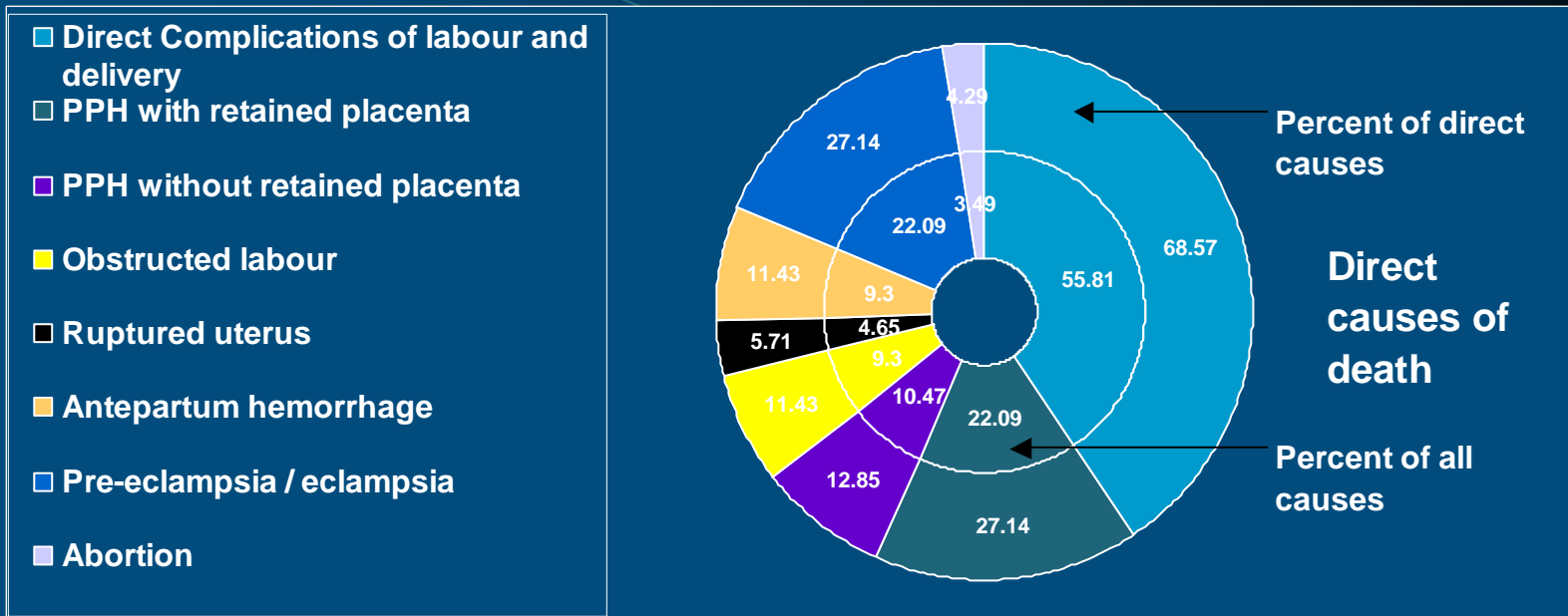


Table: 4
Time interval between birth and death by cause

Causes (All Causes)	Time Interval								Total
	Hours				Days				
	0 to 2	3 to 6	7 to 12	13 to 24	2 to 3	4 to 7	8 to 14	15 to 42	
PPH with retained placenta	1	10	7	1	0	0	0	0	19
PPH without retained placenta	0	5	3	0	0	1	0	0	9
Eclampsia	3	0	1	1	2	1	0	0	8
Antepartum haemorrhage	0	3	0	0	0	0	0	0	3
Obstructed labour	0	2	0	0	0	1	0	0	3
Raptured uterus	1	0	0	1	0	0	0	0	2
Abortion	0	0	0	0	0	0	0	0	0
Anaemia	0	0	0	1	0	2	1	1	5
Jaundice	0	0	1	0	1	1	0	0	3
Cardiac failure	0	0	0	0	0	0	0	0	0
Respiratory failure	0	0	0	0	0	0	0	0	0
Acute diarrhoea	0	0	0	0	0	0	0	0	0
Snake bite	0	0	0	0	0	0	0	0	0
Total %	9.6	38.5	23.1	7.7	5.7	11.5	1.9	1.9	100
Total N	5	20	12	4	3	6	1	1	52

Table: 5
Logistic Regression Model of Determinants of Maternal Mortality
(Odds Ratio)

Independent Variable	Odds Ratio	Significance Level
Age of mother		
15-19	-	-
20-29	1.11	0.8
30-39	1.1	0.855
40+	1.82	0.424
Gravidity (Previous pregnancies)		
1-2	-	-
0	2.29	0.009
3 & above	2.25	0.009
Mother's education		
Some education	-	-
No education	1.24	0.41
Smoking Status		
Not Smoking	-	-
Smoking	14.17	0
Immunization against tetanus		
Not Immunized	-	-
Immunized	0.18	0
Economic Status		
Very poor & Poor	-	-
Well-off	0.82	0.578
Anaemia Level		
Normal	-	-
Abnormal	35.45	0