

Attachment 1.
FACE SHEET)

ETHICAL REVIEW COMMITTEE, ICDDR,B.

Date 3.6.91

Principal Investigator DR. YASMIN H. AHMED Trainee Investigator (if any) DR. SHAHIDA TARIQ

Application No, PCC/003/91

Supporting Agency (if Non-ICDDR,B) _____

Title of Study STUDY TO IDENTIFY THE

Project status:

DETERMINANTS OF PERINATAL MORTALITY

(☒) New Study

() Continuation with change

IN SELECTED HOSPITALS OF BANGLADESH

() No change (do not fill out rest of form)

Circle the appropriate answer to each of the following (If Not Applicable write NA).

Source of Population:

- (a) Ill subjects Yes No
(b) Non-ill subjects Yes No
(c) Minors or persons under guardianship Yes No

Does the study involve:

- (a) Physical risks to the subjects Yes No
(b) Social Risks Yes No
(c) Psychological risks to subjects Yes No
(d) Discomfort to subjects Yes No
(e) Invasion of privacy Yes No
(f) Disclosure of information damaging to subject or others Yes No

Does the study involve:

- (a) Use of records, (hospital, medical, death, birth or other) Yes No
(b) Use of fetal tissue or abortus Yes No
(c) Use of organs or body fluids Yes No

Are subjects clearly informed about:

- (a) Nature and purposes of study Yes No
(b) Procedures to be followed including alternatives used NA Yes No
(c) Physical risks NA Yes No
(d) Sensitive questions NA Yes No
(e) Benefits to be derived Yes No
(f) Right to refuse to participate or to withdraw from study Yes No
(g) Confidential handling of data Yes No
(h) Compensation &/or treatment where there are risks or privacy is involved in any particular procedure NA Yes No

5. Will signed consent form be required:

- (a) From subjects Yes No
(b) From parent or guardian (if subjects are minors) Yes No

6. Will precautions be taken to protect anonymity of subjects NA Yes No

7. Check documents being submitted herewith to Committee:

- ☒ Umbrella proposal - Initially submit an overview (all other requirements will be submitted with individual studies).
☒ Protocol (Required)
☒ Abstract Summary (Required)
☒ Statement given or read to subjects on nature of study, risks, types of questions to be asked, and right to refuse to participate or withdraw (Required)
☒ Informed consent form for subjects
☒ Informed consent form for parent or guardian
☒ Procedure for maintaining confidentiality
☒ Questionnaire or interview schedule *

* If the final instrument is not completed prior to review, the following information should be included in the abstract summary:

1. A description of the areas to be covered in the questionnaire or interview which could be considered either sensitive or which would constitute an invasion of privacy.
2. Examples of the type of specific questions to be asked in the sensitive areas.
3. An indication as to when the questionnaire will be presented to the Cttee. for review.

- ☒ Questionnaire includes full component
- a. admission form d. Post-partum F-up form
b. antenatal check up form
c. delivery/complication form

I agree to obtain approval of the Ethical Review Committee for any changes involving the rights and welfare of subjects before making such change.

Yasmin H. Ahmed
Principal Investigator

Shahida Tariq
Trainee

A-032071

June 3, 1991

SECTION I: RESEARCH PROTOCOL

1. Title : A study to identify determinants of perinatal mortality in selected hospitals of Bangladesh.
2. Principal Investigator(s):
Dr. Yasmin H. Ahmed
3. Co-Principal Investigator:
Dr. Shahida Tariq
Dr. Abdullah H. Baqui
4. Starting date : July 1, 1991
5. Completion date : September 30, 1992
6. Total direct cost: US \$ 9,858 (Taka 3,54,875)
7. Recommendations :

(A) National Institution
Signature of the Director
BIRPERHT

(B) ICDDR, B

Halida Akter

Abstract/Summary

Perinatal mortality is defined by WHO/UNICEF as mortality among fetuses weighing more than 1000 gms. before or during delivery and deaths occurring within first week of life. A number of studies have identified the rate and determinants of perinatal mortality in different countries, including Bangladesh. However due to lack of consistent definition of perinatal mortality the findings of these studies are not comparable. This study is designed to identify the determinants of perinatal mortality in selected centers of Bangladesh, in conformity with WHO/UNICEF definition of perinatal mortality.

In addition, considering the need for competent health researchers in the country, the study proposes to train a representative of the Obstetrical and Gynecological Society of Bangladesh on research methodology, through active participation in the study. Exposure of young graduates/physicians to research methods in course of data collection will also contribute to development of research skills among selected doctors.

In order to meet the aforementioned research objectives, a prospective study will be conducted at the Azimpur Maternal and Child Health Training Institute, the ante-natal clinic of Sir Salimullah Medical College and Radda Barnen's MCH clinic. About 2035 women who report to these clinics at 24-28 weeks of pregnancy will be enrolled through a period of 6 months. They will be followed up as per the clinic's antenatal checkup schedule, and also at delivery and at 7 days postpartum. Information on delivery and at 7 days postpartum will be collected either at the hospital/clinic where the patient delivered the child, or at home. The total study will require fifteen months to be completed.

SECTION II : RESEARCH PLAN

1. AIMS OF THE PROJECT :

a) General aim :

The study aims to identify the determinants of perinatal mortality in selected hospitals and clinics of the country, and in course of this, strengthen the capacity of the Obstetrical and Gynecological Society of Bangladesh for conducting research through transfer of technology. In addition the study will also enhance the capability of physicians working in the obstetrics department of selected hospitals in organizing and conducting research through exposure to and participation in various steps of this research.

b. Specific aims :

1. To determine maternal socio-economic, demographic and behavioural and health care factors which contribute to perinatal mortality.
2. To determine factors related to antenatal, at birth & postnatal care which affect perinatal mortality.
3. To identify foetal or infant conditions associated with perinatal deaths including foetal condition at birth (to be measured by APGAR score), infant feeding practices and morbidities leading to perinatal death.
4. To assess the relative risk of the maternal and foetal factors for perinatal mortality.
5. To develop maternal and foetal indicators of risk for perinatal mortality.

c. Significance :

Implementation of this project will help to enrich the research pool of the country in general, and that of the Obstetrical and Gynecological Society of Bangladesh in particular through transfer of technology. The study will yield a death case rate of perinatal mortality for the study sample. It may be mentioned that there is, as yet, no reliable estimate of perinatal mortality as per WHO/UNICEF definition. The identification of indicators for perinatal mortality will help in future designing of strategies to reduce the incidence of perinatal mortality.

2. ETHICAL IMPLICATIONS:

The study involves collection of information from patient population through structured interviews. The interviews will be conducted by well trained clinic staff or by interviewers trained by the Principal Investigator.

Patients selected for enrollment into the study will be explained the purpose of the study, its methodology, and the time and type of cooperation required from them. They will be ensured that participation in the study is voluntary, and they may withdraw from the study at any time. Patients will also be assured that if they decide not to participate in the study, or withdraw from it, that decision will not in any way hamper their treatment or services they were receiving or will receive from the center. The above mentioned information will be contained in the introduction of the questionnaire, and will be read out and explained to every respondent.

The admission form will require 15 mins. to be completed. The follow-up forms will be completed in 10 minutes, and the forms for collection of information at delivery, and post partum, 15 mins. each. The admission and follow-up interviews will be administered during routine clinic visit. For collection of information at delivery, partum patients will be visited at their homes/clinics by study interviewers. The study therefore will not involve any expenditure on the part of the patient and therefore there will be no monetary compensation to the patient from the study. However, the investigators recognize and acknowledge the time and effort expended by the respondent in filling up the questionnaire.

3. BACKGROUND INFORMATION AND RATIONALE:

a. Background information

According to the WHO/UNICEF joint statement the term perinatal mortality includes both late foetal and early neonatal deaths. Late foetal deaths are those that occur before or during delivery of fetuses weighing 1000 gms or more. Where birth weight is unavailable the corresponding gestational age (28 weeks) or body length (35 cms crown heel) should be used to define the cut-off point. Early neonatal deaths are those that occur in the first week of life. The perinatal mortality rate is usually expressed as the rate of late foetal and early neonatal deaths among fetuses and infants weighing 1000 gms or more at birth, per 1000 live births (1).

A large number of studies have looked into the issues of perinatal mortality. The incidence of perinatal mortality has been found to vary over a wide range in countries where such studies were conducted. For example, an analysis of births and neonatal deaths to North Carolina, USA resident mothers for the cohort years 1968 through 1977 were analyzed. The mortality rate among babies with birth weights of 1000 gms or less was found to be 803/1000 live births and 696/1000 live births among whites and non-whites respectively(2). In another analysis of neonatal mortality, data for infants delivered between 1958 and 1969 at the University of Colorado Health Services Center, it was found that 57.4% of infants with birth weight between 500 gms to 999 gms, and 100% of those with birth weight less than 500 gms died (3).

In a population based longitudinal study on perinatal mortality conducted in Norway, it was shown that perinatal mortality decreases with increasing parity and increases with sibship size. These associations which are not noticeably affected by maternal age seem in part to operate through an association between parity, sibship size and birth weight (4).

Needless to say, the rates and proportions mentioned in these studies which were all conducted in developed countries will not apply to Bangladesh. Moreover, these studies have not used any consistent definition of perinatal mortality. For example, in the last study mentioned (4), perinatal mortality was defined as number of deaths among fetuses with a gestational age of 16 weeks or more plus the number of deaths occurring during first week of life per 1000 live births. The denominator included all live births and deaths of fetuses of gestational age 16 weeks or more. On the other hand, in the University of Colorado Health Center study (3), birth weight were classified in 500 gms categories and the gestational age in 3 weeks categories precluding the determination of any cut-off point for defining perinatal death.

These studies do lead us to conclude that

- a. perinatal deaths are important components of neonatal, and for that matter infant deaths and
- b. various factors including gestational age, birth weights, maternal parity and sibship size have important functions in determining the incidence of perinatal deaths.

Among the developing countries, a number of studies on perinatal deaths have been conducted in India. Again, these studies suffer from the essential deficiency of using varying definitions of perinatal death. Therefore the findings are not comparable. For example, a study of 1441 perinatal deaths at Associated Group of Hospitals in Bikaner, Rajasthan found a perinatal mortality rate 110.67/1000 live births. These deaths included intrauterine deaths after 20 weeks of gestation and from 20 weeks of gestation to 28 days of neonatal life (5). In another study conducted at KK Municipal Hospital in Bombay, the authors mention a perinatal mortality rate of only 29.9/1000 live births, but do not define perinatal mortality (6). Yet another study reported a rate of 77.22/1000 live births, but again, did not define perinatal mortality (7). We reviewed numerous other studies conducted in India, but none of these studies have used any consistent definition of perinatal mortality. However, in some of these studies, authors have indicated possible risk factors for perinatal mortality. These included extremes of maternal age, prematurity, low birth weight of the baby, obstructed labour, severe maternal anaemia, and other medical complication of the mother or child (5). Inferior quality of MCH care, extremes of maternal age and higher parity were mentioned in another study (7).

Among other developing countries, in Libya, a one year prospective study revealed a perinatal mortality rate of 27.5/1000 live birth, which was comparable to that of Kuwait (24.7/1000 live birth) and was less than that of Nigeria (86.9/1000 live birth) (8). In Hong Kong, a hospital based study revealed a perinatal death rate of 21.5/1000 live births. This study too did not define perinatal mortality (9).

In Bangladesh a hospital based study found the perinatal mortality rate to be 116.8/1000 live births. In this study too the perinatal period has not been clearly defined. Factors that have been mentioned to be associated with perinatal mortality include pregnancy and labour complications and smoking. (10).

b. **Rationale**

The need for research capability development is a well recognized necessity in Bangladesh. There is dearth of capable researchers to develop well designed study protocols to answer specific research problems or questions, and effectively execute studies, analyze data and write up the findings. This has stunted research and development of research based policies and programmes in the sector of health and family planning. The medical graduates of our country who are in intimate contact with the problems

existent in this sector through their profession do not have any exposure to the concept or modalities of research. As a result important health problems remain unidentified or unsolved. Side by side, these young physicians whose professional careers could be greatly promoted by acquirement of research skills remain away from this important field.

This study, which is designed to collect information on one of the vital lacunae of our knowledge on MCH has, as one of the primary objectives the development of skills in conducting and monitoring a research study protocol. The study will closely involve a representative of the Obstetrical and Gynecological Society of Bangladesh, who will remain associated with instrument development, study implementation, data collection, supervision, monitoring, data analysis and report writing of the study. This will generate the necessary research skills in the selected representative through transfer of technology. The research skill can be later drawn on to enable the Society to conduct its own studies and also to create its research pool.

The volume of published work on perinatal mortality in Bangladesh is very scarce. Internationally, a considerable number of studies have been conducted to determine the perinatal mortality rate and factors associated with or contributing to such deaths. However, these studies have used varying definitions of the perinatal period. For this reason, the findings from these studies are not comparable and may not be in conformity with the definition.

Considering the facts that

- (a) perinatal mortality is an important index of health care of a country;
- (b) the incidence of perinatal mortality is extremely high in Bangladesh, in fact, one of the highest in the world (117/1000 live births according to the hospital based study mentioned) and contributes a substantial proportion to infant mortality;

It is essential that a well designed study be conducted to identify the determinants of perinatal mortality and assess its extent in selected hospital of Bangladesh.

4. METHODS:

a. Study Sites:

The study will be conducted in three centers which provide routine antenatal care services. These centers will be the Azimpur Maternal and Child Health Training Institute (MCHTI), the antenatal clinic of Sir Salimullah Medical College Hospital and the MCH clinic of Radda Barnen at Mirpur.

b. Methodology:

It will be a prospective study. All women who come to the selected centers during the study period at 24-28 weeks of pregnancy and are willing to come to the clinic regularly for follow up as per the normal schedule of antenatal care will be enrolled into the study. At admission data will be collected on relevant variables including expected date of delivery (EDD). Data on progress of pregnancy including information on medical and obstetrical examination will be collected at each follow up. In case a patient fails to return for follow up, home visits will be conducted by to collect the relevant data.

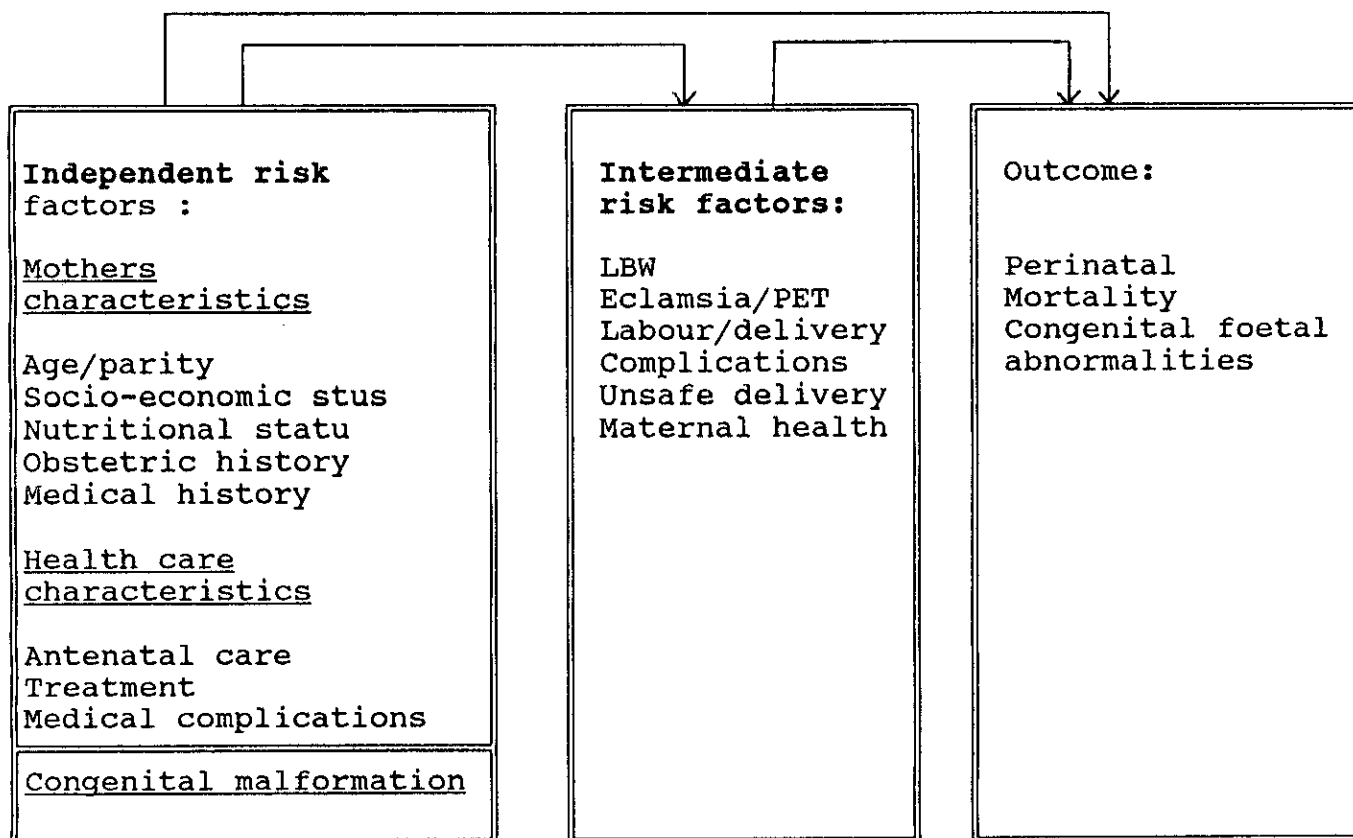
Information on pregnancy outcome and mode and conduct of delivery will be collected either through home visits (in case of home delivery) or by visiting the patient at the clinic/hospital/center where the patient may be admitted for delivery. At admission and at each follow up visit information will be collected from the patient regarding her intention as to where the delivery will be conducted, and she will be visited accordingly at her home/hospital/elsewhere. In case of those patients who deliver outside hospitals, efforts will be made to contact the person who conducted the delivery (e.g. TBA/female relation) to collect information on the delivery and condition of the newborn at birth. Another visit will be conducted at seven days post-partum at the place where the patient will be residing at that moment. Those patients who need home visits but reside outside a 10 mile radius of the respective clinic will not be followed up and will be excluded from analysis.

Perinatal death will be defined as per the WHO/UNICEF definition stated in page one of this proposal. Variables of interest for the mothers and infants in the study group will be compared for identification of risk foeters.

c. **Conceptual Framework:**

Based on the literature review, the following conceptual framework is proposed:

The Conceptual Framework:



d. **Variables:**

Information will be collected on the following variables:

At admission:

A. Maternal socio-demographic characteristics: Age, education, socio-economic status (to be determined by certain proxy variables including monthly earning, employment, type of housing, sanitation) household size.

B. Obstetric History:

Gravidity, parity, sibship size, bad obstetric history, previous deliveries, previous perinatal or neonatal or infant deaths.

C. Medical history:

History of any concurrent medical disease with particular reference to anaemia, hypertension, diabetes mellitus, hepatic disease, renal disease, urogenital disease, cardiovascular disease.

D. Personal history:

Smoking habits, contraceptive use, previous breastfeeding practice.

E. Current Pregnancy:

Duration of pregnancy (from history & height of uterus), expected date of delivery, foetal condition, blood pressure, weight, anaemia.

At follow ups:

Data will be collected on all the variables related to current pregnancy and management of any complications during antenatal visits.

At delivery:

At delivery, information will be collected on mode of delivery, place of delivery, person conducting the delivery, condition of new born at birth (subjective assessment of an attendant), birth weight (where available), breastfeeding.

At seven days post partum:

Information will be collected on foetal condition, maternal condition, breastfeeding.

e. Data Collection:

Patients will be enrolled into the study through the use of a selection criteria checklist. Data at admission, follow-ups, pregnancy outcome and delivery, and seventh day post-partum condition will be collected through structured forms. Another structured form will be used to record detailed current address of the patient and name and address of at least two alternate contact persons.

All the forms for a single patient will be filed in patient specific dossiers which will be maintained at the clinic. The forms will be administered by the clinic staff during their routine contacts with the patients.

f. Sample size:

The study will enroll eligible women in the selected centers for a total of 6 months. Another 4 months will be required to complete follow up of all recruited women upto post-partum day. Total duration for recruitment and follow-up period will be 10 months.

Considering the random sampling technique, the formula for calculation of sample size is,

$$n = \frac{1}{1 - f} \left[\frac{(Z)_a^2 P(1-p)}{d^2} \right]$$

Where

n = required number of patients;

z_a = The standard normal deviate set at 1.96 corresponding to the 95% confidence interval;

f = Expected population of lost-to-follow-up cases

p = Proportion in the target population expected to have the particular characteristic.

Because the perinatal mortality rate is about 120 per 1000 live births, P is 0.12 and 1-P=0.88, and f= 0.3 who assume that (30% will be lost-to- follow-up or will deliver outside the geographical study limits). d = degree of accuracy desired (set at 0.05).

$$\begin{aligned} \text{We have, } n &= \frac{1}{1 - 0.3} \left[\frac{(1.96)^2 (1.2) (8.8)}{(0.05)^2} \right] \\ &= 232 \end{aligned}$$

Thus the sample must yield at least 232 perinatal deaths. Assuming perinatal death rate to be 120/1000 live births, a minimum of 1933 pregnancies will to be required.

These 1933 pregnancies will include a proportion of still births. Since the definition of neonatal mortality has live births as the denominator, the sample size must be inflated to accomodate these still births. Previous study has shown (11), still birth rate to be about 5 percent in Bangladesh. Allowance for still birth therefore inflates the sample size to 2035 cases, which can be rounded to 2050 cases.

Review of clinic records at MCHTI revealed that an average of 20 women at 24-28 weeks of pregnancy report to that center every day. The corresponding number at Sir Salimullah Medical College was 10 and at Radda Barnen clinic was 15. Antenatal services are available on 2 days of a working week. Therefore it is expected that a total of 2160 clients will be recruited during a study period of 6 months.

g. Data Analysis:

- a) The case to perinatal death rate among the study sample will be determined.
- b) Differentials in perinatal mortality among the sample group will be examined by selected variables.
- c) The significance of these differences will be assessed through appropriate statistical tests.
- d) Risk factor analysis techniques such as multivariate logistics analysis (risk factor regression model) will be used to calculate odds ratio of each factor controlling for other factors.

R. WORK PLAN

Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BIRPERHT in house preparatory activities															
Training															
Client recruitment															
Client follow-up															
Interim report															
Data analysis															
Report writing															

5. FACILITIES REQUIRED:

The project would require clinic bases which provides regular antenatal, delivery and postnatal care services. These services are available at the MCHTI, Azimpur and Sir Salimullah Medical College Hospital. Antenatal and postnatal services are available at Radda Barnen's Clinic, which does not have delivering facilities. However, the study design has the provision for following up women who deliver outside these clinics.

6. COLLABORATIVE ARRANGEMENTS:

The study will be implemented by BIRPERHT in close collaboration of the Gynecological & Obstetrical Society of Bangladesh and ICDDR,B. One of the members of the Society will work side by side with the Principal Investigator and the Co-Investigator in designing instruments, implementing the study, data analysis and report writing, while the ICDDR,B person will provide technical guidance in preparing data collection instruments and in data analysis. The study will also require the collaboration of an obstetrician, and a pediatrician who will provide necessary technical guidance in development of questionnaires. The recommendations based on study findings will also use the collaboration of these two experts.

REFERENCES

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9. Rasur PA. Gurkha obstetrics and perinatal mortality in the new territories: Hong Knog. Journal of the Royal Army Medical Corps, Feb., 1981 127(1): PP 26-30

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11. Begum SF, Jabeen S, Bhuiyan SN, Chowdhury TA, Barua-A, et al Fifth Contributors Conference, Dhaka, Bangladesh, December 13, 1980, Dhaka, Bangladesh Fertility Research Programme (1981). 16-32.

SECTION III : BUDGET

A. PERSONNEL COSTS:

Sl. No.	Name	% Effort	No.of months	Monthly rate (Taka)	Budget required (Taka)
1.	Dr. Yasmin H. Ahmed*	20%	15	5000	15000.00
2.	Dr. Shahida Tariq*	25%	15	5000	18750.00
3.	Dr. Abdullah H. Baqui	5%	15	-	-
4.	Representative from Obstetrical & Gynaecological Society of Bangladesh	30%	15	5000	22500.00
5.	Interviewers 2 per center x 3 centers	100%	9	2500	1,35,000.00
6.	Honoraria for clinic contributors. Tk.1500 per center x 6 months x 3 centers				27,000.00
7.	Technical assistance				4,000.00
8.	Honoraria for TBAs Tk.10 per case x 600 cases				6,000.00
Sub-Total :					2,28,250.00

Sl. No.	Name	% Effort	No.of months	Monthly rate (Taka)	Budget required (Taka)
B.	SUPPLIES & MATERIALS:				10,000.00
	Computer accessories, papers				
C.	TRAVEL COST & TRANSPORTATION :				
	a. 2050 clients x 3 visits per client x 25% clients x Tk.30				46,125.00
	b. POL for study monitoring by PI & Co-PIs Tk.500 pm x 6 months				3,000.00
D.	RENT, COMMUNICATION, UTILITIES :				
	Rent: Tk.1000 PM X 15 M				15,000.00
	Communication: Tk.250 pm x 15 m				3,750.00
	Utilities :Tk.250 pm x 15 m				3,750.00
E.	OFFICE STATIONERY				2,000.00
F.	FORMS PRINTING				30,000.00
	Report printing				10,000.00
G.	TRAINING OF INTERVIEWERS				2,000.00
H.	CONTINGENCY				1,000.00
	GRAND TOTAL :				3,54,875.00
					=====
					US \$ 9,858.00

@ Tk.36.00 = 1 US \$

*This amount will be deposited in

BIRPERHT account and will help support the specified staff's salary.