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Date

Principal Investigator Dr. M.U. Khan
 Identification No. 83-012
 Title of Study Intervention of Transmission of cholera in family contacts by hand washing/chlorination

Trainee Investigator (if any) Dr. Emdadul Hoque
 Supporting Agency (if Non-ICDDR,B) _____
 Project status:
 New Study
 Continuation with change
 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 Yes No
 - (c) Physical risks Yes No
 - (d) Sensitive questions 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 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 Yes No
 - 7. Check documents being submitted herewith to Committee:
 - Umbrella proposal - Initially submitted as 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 committee for review.

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

M U Khan
 Principal Investigator

8 APR 1983

Trainee

83-012
17-4-83

SECTION I - RESEARCH PROTOCOL

1. Title : Intervention of transmission of cholera in family contacts by hand washing/chlorination.
2. Principal Investigator : Dr. Moslem Uddin Khan
3. Starting Date : May, 1983 (or as soon as cleared)
4. Completion Date : 1 yr. from start
5. Total Direct Cost :
6. Scientific Program Head :

This protocol has been approved by the Disease Transmission
Working Group.

Signature of Scientific Programme Head: A. J. Ahmad
Date: 10/4/83

7. Abstract Summary:

Cholera remains a serious problem in Bangladesh. The secondary infection and case rates are high in families and in affected neighbourhood. Most case can be saved by oral and selected intravenous therapy. But deaths still occur due to lack of therapy and knowledge. We plan to interven intrafamilial spread by active health education and chlorination of domestic stored water. The cholera cases would be identified and the family will be visited on the same day of admission. The selected families will be censused and rectal swabs and handwash obtained and cultured from family members for 10 days. Domestic water samples will be obtained for culture. The study families will be grouped into (1) Health education with provision of soap group (2) Control group and (3) Water chlorination group.

Contacts will be educated to use soap before eating anything and after using the latrine. Soap and earthen pitchers will be provided for this group. In control group nothing will be changed. Domestic stored water will be chlorinated in the chlorination group. The groups will be strictly matched for important variables. All diarrhoea cases will be treated with ORS at home. At least 70 families from each group will be considered as minimum. This study will document the effectiveness of use of soap or chlorination of domestic water in reducing the secondary cholera infection. If found effective the best one may be advocated during epidemics of cholera.

8. Review:

- a. Ethical Review Committee: _____
- b. Research Review Committee: _____
- c. Director: _____
- d. BMRC: _____

SECTION II - RESEARCH PLAN

A. INTRODUCTION

1. Objective : Mortality from cholera in untreated cases is one of the most important public health problems now in Bangladesh. The morbidity and mortality are worse in remote areas. The intrafamilial and neighbourhood spread of infection is very common. Easy ways of protection against shigellosis and nosocomial infection have been demonstrated by washing hands. This study will examine whether intrafamilial infection and disease can be reduced significantly by washing of hands with soap and water, and by using chlorine tablet in domestic water container of the infected families both in urban and rural areas.

2. Background : In most developing countries of the tropical and subtropical zones of the world diarrhoeal diseases still cause a great deal of morbidity and mortality(1). Of all the diarrhoeal disease cholera is the most dreaded one. Over 100 years ago John Snow proved that the agent was carried by water(2). Morgan et al in Thailand(3) and Dozon et al(4) in Philippines reported that multiple cholera cases in cholera affected families are not very common. Soon it was found by the Pak-SEATO CRL(5) that over 11% family contacts contracted the infection. A.Q. Khan et al(6) found that the secondary infection rate may be much higher in some cases. Martin found 17.7%(7) and Mosley found

16.7% of the contacts to be affected with secondary infection. Bart observed that when both classical and El Tor cholera occur in the same socioeconomic groups the secondary infection rate for classical was 24.6% and for El Tor 20.6%(8). In 1973 Khan et al found that the secondary infection rate for El Tor in Dhaka was 31% of which over 24% developed symptoms(9). It is therefore, proved that the family contacts and neighbourhoods are at greatest risk of developing cholera. McKay has stated that cholera cases spread fast and kill people quickly(10). How cholera is transmitted from one to another have been studied by many workers after John Snow. Irrigation canal(11), shrimps(12), boatman(13), sea foods(14,15), bottled water(16), charitable meals(17), canal water(18,19), different food staff(20) are the usual vehicle of transmission. The knowledge of all these vehicles however, could not adequately prevent the transmission of cholera during epidemics. In addition to other things, Wissman et al suggested separation of infected ones from the non-infected ones and practice of health education for shigellosis(21) which is transmitted from person to person. Ketharine found routine handwashing effective in removing bacteria(22). Allen advocated washing hand with soap and water for removing nosocomial infection(23). Hand washing has been found useful in India(24) USA(25) and Bangladesh(26) for diseases which spread from person to person. We have isolated Shigellae from hand(26) and Samadi has isolated Rotavirus from hand(27). More recently scientists

have found in Africa that cholera also is transmitted from person to person(28). Our present studies on classical and El Tor cholera supports that V. cholerae can also be isolated from hand. This may explain why cholera could not be prevented in a camp with Central Water Supply and Sewerage-connected latrine facilities(29). Spira et al found that stored water contained vibrio and the secondary infection rates were higher in families with infected stored water(30). Chlorine has been effective when added in central water supply. In villages central supply of water does not exist. Although none has studied its effectiveness when supplied in domestic water container in Bangladesh one Indian scientist has reported effectiveness of chlorine in preventing diarrhoea(31).

Therefore, in a situation where people dies in thousands (as in Bangladesh, 1982) during cholera/diarrhoea epidemics and when vaccination is neither effective nor economic, safe water supply remains a remote possibility and scope of sanitary latrine is poor some sort of preventive measures are desirable and obligatory for every people's government. Our hypothesis is that both washing of hands of contacts of cholera cases with soap and water or simple chlorination of domestic water will be effective in reducing subsequent infections. During epidemic time this may save many people. Therefore, we want to test the ideas in the field. We are aware that people do not change their habit so easily. We have to make an all out effort to educate hand washing and using chlorinated water during epidemic. Otherwise, in remote areas a very high rate of mortality during epidemic cycles may prevail until sufficient protective measure is adopted.

Intervention is particularly necessary considering the reappearance of classical Vibrio cholerae in Bangladesh which is claimed to be more severe in causing disease and deaths than the El Tor cholera.

3. Rationale: Cholera causes a high degree of morbidity, mortality and a considerable dislocation of affected families and the Public Health Department. About 15,000 people died of diarrhoea in Bangladesh in about Six-months' time (32). Sometimes cholera causes panic and kills large number of people in a short time. Multiple cases from a family or a community are frequently reported. Large number of inapparent, mild and severe cases can transmit the disease to others. For poor families or low socioeconomic communities (as in Bangladesh), cholera is a cause of great concern; but there is no known effective and workable preventive weapon within the economic feasibility of the country. It has been seen that by handwash nosocomial infection, indigenous infection and shigellosis could be considerably reduced. As vast sources of water can not be chlorinated whether chlorination of stored water is effective, in the face of epidemic, needs a trial. Therefore, an intervention, if found successful, the most effective one can be easily enforced keeping other factors unchanged even in village situations.

B. SPECIFIC AIMS OF STUDY

1. Does washing hand with water and soap reduce the secondary cholera attack rates significantly?

2. What is the role of chlorination of domestic water in preventing cholera?

C. METHODOLOGY

The confirmation of cholera is not obtained until the second day of admission. If we wait until the 2nd day we may miss many subsequent infections. Therefore, family study will be begun on the same day on receipt of of DF results from the outdoor in Dhaka and Matlab.

The criteria for selection of cases will be as follows:

The first available case admitted in the Hospital/Treatment Centre for treatment of diarrhoea will be considered as an index study case.

He should be the first case in the family, has not used antibiotic for the present illness, lives in Dhaka city or suburb or within reasonable distance of Matlab area, has a family living with him, is cooperative. He may be of any age (0-5, 5-9, 10-14, 15-19, 20-39, 40-59, 60+) sex and religion. His/her family contacts will be studied and handwash intervention will be applied.

The field teams will meet the patients to scrutinize the above criteria every morning and select probable cholera cases for D.F. examination.

A laboratory technician will do dark field examination of rectal swabs/stool of probable cholera cases in the early morning. If recruited in study then the case should be confirmed by culture otherwise will be dropped from study.

Depending on availability of cases three cholera cases will be selected. Those selected will be retained in the hospital for at least a night for better cooperation. Later on whether the patient will be discharged or retained, will depend on the consideration of the physicians on duty. The patients thus selected will be assigned alternatively into 3 groups. The first one(A) will be selected for handwashing intervention study, second one (B) for control and the third one (C) for chlorination of domestic water intervention study. Their detailed addresses will be obtained and if possible the attendants will be taken with the teams for identifying the homes of the cases for the first time.

The two study cases will be matched with a single control case by the following criteria.

A. Socioeconomic conditions as indicated by the following factors:

1. Types of housing (building, semi-pucca, tin-shed, thatched).
2. Sources of domestic water: city supply/T.W., surface water, mixed.
3. Per capita monthly income (upto Tk. 200, Tk. 300-500, Tk. 500-1000, over Tk. 1,100).

B. Age and Sex Groups:

C. Duration of purging of index cases :

1. 0-6 hours
2. 7-12 hours
3. 13-24 hours
4. 25 hours or over

A separate team (one trained male and one female field assistant) will visit each family on the day of hospitalization with forms, plates, tubes, water sampling bottles, chlorine tablets etc. The family census and the socioeconomic forms will be filled in their premises. After filling in the forms RS/SS will be obtained and streaked on Monsur's plates and then put the swab in B.P. tubes for culture from all members. A 50 ml of water will be collected in bottles containing 25 ml triple strength bile pepton media, from the family water sources used as well as from the storage pitchers/jars. They will wash the left hand, nail beds and fingers of the patients and contacts on a sterile petridish with 20 ml of B.P. media from universal containers and then pour it back to the same containers. The culturing will be done using a standard method in the laboratory(33). Finger stick blood would be collected from all, once on the first and once on the 10th day for estimation of vibriocidal titre rise.

In case of severe diarrhoea in contacts of any group, the patients should be hospitalized as usual through the OPD. In the cases of mild to moderate diarrhoea the contacts will receive ORS at home.

On the first day, the teams will supply for group A one bath soap, and 2 earthen pitchers for storing water. A second piece of soap will be supplied on the 5th day of visit or earlier. The pitcher should be filled with water in the morning and evening especially once in the presence of field teams. In cases of large families (over 6 members) one additional pitcher and a piece of soap may be supplied. One tin 'mug' will also be supplied where necessary to index families(A).

Before supply the soaps will be divided into two pieces to ensure use. Members will be advised to wash hands with soap and water after defecation and before eating anything. The teams will ask and verify every morning whether the soap and water had been used adequately. Every day they will instruct the members to use soap and water thoroughly after defecation and before taking any meals. Every morning the workers will note down whether the soap had been used on the previous day and night and physically see whether they wash hands with soap and water from the pitchers. They will also ensure that the pitchers are filled in their presence. The teams will visit very early in the morning from the 2nd day during the first 5 days and stay for some time to watch compliance of instructions. They will tick against 12 points on form no. 4 every day for first five days and one of them will put his signature.

In the cases of control group (B) nothing should be influenced. Their ways of taking care of their sick, food, water and environment should not be interfered. No soap or pitcher should be supplied for any family of control group (B). Serious cases should however, be encouraged to bring to the ICDDR,B Hospital for treatment and other cases be treated with ORS at home. Diarrhoea of contacts will be noted. Rectal swab, handwash and water samples will be collected as for index families for culture.

For chlorination of water group (C) chlorine tablets will be supplied. Field workers will mix tablets when their pitchers and other

water containers are filled in their presence. Members will be instructed to use chlorinated water only and not the surface water sources during epidemic in the area. The forms should be daily filled in with the replies of all questions and the culture results. This group will not be provided with soap or pitcher. Concentration of chlorine should be one part milli in the containers. An idea will have to be made by measuring the sizes of water containers and the use every time they fill the containers. They left over water in the pitchers will be smelled for chlorine every morning before they are filled.

Five families will be assigned to each team. Each team will visit the family daily for 10 days or until 3 daily PS become negative beyond 10 days.

Assuming that there will be 5-6 members in each family and there will be some non-cooperation and dropping out, at least 70 families in each group will have to be studied to show a significant difference of about 50% in the subsequent attack rates between case and control families.

Data analysis: The effectiveness of the intervention will be compared: Plan of data analysis are as follows:

1. Secondary infection rate in each group by age/sex.
2. Secondary case rate in each group by age and sex.
3. Infection to case-ratio by age and sex.

4. Isolation rate from sources of water in 3 groups.
5. Isolation of V. cholerae from pitchers.
6. Isolation of Vibrio cholerae from hand washing of the family contacts.
7. Incidence of other diarrhoeas in the groups.
8. Rate of subsequent hospitalization and deaths from diarrhoea in three groups.

The data will be coded, punched, tabulated and analyzed using either the IBM machine or the computer. Significance test will be done by using the X^2 test. Some dummy tables are shown.

D. SIGNIFICANCE

This study will establish how many of the secondary cases can be averted by intervention with hygienic practices and chlorination of water only. If found effective the better method of intervention can be applied easily during epidemic of cholera where no other intervention is feasible. This can be recommended for the affected areas.

E. FACILITIES REQUIRED

1. Office space: As the study would be conducted in the field no outside office space (other than ICDDR,B) will be needed.
2. Laboratory space: Laboratory work will be done in the ICDDR,B Microbiology Branches and as such no separate laboratory space is needed.

3. Hospital resources: The severe cases from the study families will be admitted as usual outside cases. The mild cases will be treated in their home with ORS.
4. Animal resources: Animals will not be needed for conducting any test for the purpose of this study.
5. Logistical support: The location of the study will be in Matlab and within the city. Two vehicles will be needed daily for about 5 hours in the morning and 2 hours in the afternoon on all the days of the week during the period of the study in Dhaka. In Matlab two speedboats with driver will be needed daily. These are already available..
6. Major items of Equipment: No major equipment is needed. Minor equipments like field bag, spirit lamps, umbrella, gumshoe, media antisera, swab sticks, paper, pencils, candy, balloons, aspirin, oralyte, vitamins, etc. will be needed.
7. Other specialized requirements: Soap, earthen pitcher, tin mug, stool cups, computer tapes and IBM cards etc. are the important special items needed for this study.

SECTION III - BUDGETA. DETAILED BUDGET

DHAKA AND MATLAB

1. PERSONNEL SERVICES

<u>Name</u>	<u>Position</u>	<u>% Time used</u>	<u>Project requirement</u>	
			<u>Taka</u>	<u>Dollar</u>
Dr M.U. Khan	Scientist	20%		8,000
Dr Emdadul Hoque	Physician	15%		400
Dr. A.R. Samadi	Consultant			
Dr. M. Yunus	Consultant			
Mr. Shahidullah*	P.R.O.	40%		1,000
Mr. W.U. Ahmed	S.R.O.(Microb)	10%		200
Mr. B. Hossain	(Microb - Matlab)	10%		150
Mr. Dipak Kumer Barua	Sr.Health Asstt.	100%	}	5,000
Mrs. D. Purification	Health Asstt.	100%		
Ms. Tahmina Begum	Health Asstt.	100%		
To be named	Health Asstt. 1	100%		
For Matlab	S.F.R.O. 1	40%		1,200
	Health Asstt. 5	100%		7,500
	Female F.W. 2	100%		1,250
Coder - 1		100% (1.1/2m)		200
Programmer - 1		25% (1 month)		100
O.T. (approx.) 20% (sl.no.4- onward) when unavoidable only.		25%		1,800
			Sub total -	= \$ 26,800

2. SUPPLIES

<u>Name</u>	<u>Unit cost</u>	<u>Quantity</u>	<u>Dollar</u>
R.S. Culture for V.C.	Tk. 11.00	15,500	6,800
Water culture for V.C.	Tk. 7.5	3,600	1,100
Multivitamin tablet	Tk.110.00	20 tin	100
Multivitamin syrup	Tk. 12.00	100 btl.	60
Aspirin tablet	Tk.120.00	20 tins	96

7.	<u>TRAVEL AND TRANSPORTATION OF PERSONS</u>	<u>Dollar</u>
	Local travel for works or presentation	150
8.	<u>TRANSPORTATION OF THINGS</u>	
	Transport of cards and tape	6
9.	<u>RENT, COMMUNICATION AND UTILITIES</u>	
	Postage	20
10.	<u>PRINTING AND PUBLICATION</u>	
	Printing forms (appx.)	100
	Xerox cost (appx)	50
	Publication (journal) (appx).	500
		<hr/>
	Sub total \$	650
		=====
11.	<u>OTHER CONTRACTUAL SERVICE</u>	
	Typing expenses	50
	Editing charge	50
	Computer charges	50
		<hr/>
	Sub total	150
		=====
12.	<u>CONSTRUCTION, RENOVATION, ALTERATION</u>	
	Nil	

B. BUDGET SUMMARY

<u>Category</u>	<u>Taka</u>	<u>Dollar</u>
1. Personnel	-	26,800
2. Supplies	-	9,171
3. Equipment	-	-
4. Hospitalization	-	-
5. Outpatient care	-	-
6. ICDDR,B Transport	-	17,130
7. Travel Persons	-	150
8. Transportation of things	-	6
9. Rent, Communication & utilities	-	20
10. Printing	-	650
11. Contractual service	-	150
12. Construction	-	-
	<hr/>	<hr/>
	Total Tk.-	\$ 54,077
	Overhead @ 10%	\$ 5,408
		<hr/>
	Grand total US	\$ 59,485

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N.B. Dacca	-	US \$ 29,485
Matlab	-	US \$ 30,000
Total incremental cost		US \$ 32,685

ABSTRACT SUMMARYINTERVENTION OF TRANSMISSION OF CHOLERA IN FAMILY CONTACTS BY
HANDWASHING

The incidences of cholera both in urban and rural areas have increased many folds within a short period of time. The case fatality in untreated cases and the subsequent infection rates are high. Transmission of cholera is one of the most important problems in Bangladesh at present. We propose to interrupt this problem of interfamilial spread by washing hands with soap and water of the members of cholera affected families and by chlorinating the water of another group.

The cases will be selected for a 10 day follow up and the study will be initiated on the 1st day of admission of the index cases and Rectal swab and hand wash will be cultured for 10 days, illness and socio-economic history obtained from the contacts and the index cases. Water samples will be cultured. The families will be grouped into 3 groups (1) Health Education and provision of soap group and (2) Control group. About 50 families in each group will be studied in Dhaka and an equal number in Matlab. Another group (3) will be taken for intervention with chlorination.

1. The population will be from all ages, sex and religions from the metropolitan area of the Dhaka city and also from Matlab area.
2. No major risk is involved in this study. The obtaining of Rectal Swab is without any risk.
3. For minimising the difficulty in obtaining R.S. the Swab Sticks will be soaked in sterile saline. The children will be eased by giving them candy and balloons.
4. The purpose of the study will be explained to the subjects or guardians of the subjects right in their own premises. A consent form will be signed by them for every case family. They will be

— ଅକ୍ଷତି ପତ୍ର —

ଆପଣ/ଆପଣଙ୍କ ପାଠ୍ୟପୁସ୍ତକ ପ୍ରକାଶକ ସମସ୍ତ
 କଲେଜ/ଉଚ୍ଚଶିକ୍ଷା ଆକାଶ ୨୨୨୧୧, ଏହି ପୁସ୍ତକ
 ଆପଣଙ୍କ ପାଠ୍ୟପୁସ୍ତକ ଅଧ୍ୟାୟ-୧୫, ପ୍ରାକ୍ତିକ-ଅର୍ଥକ-
 ଆପଣଙ୍କ ଆତ୍ମୀୟତା ଶାନ୍ତ ଓ ବିଚାରପ୍ତି ହେତୁ ନାହିଁ।
 ଆପଣଙ୍କୁ ଚିକିତ୍ସା— ମୁଦ୍ରିତର ଜନ୍ମ-ପ୍ରକାଶ ଆପଣଙ୍କ
 ପ୍ରାକ୍ତିକ-୧୫ ଆତ୍ମୀୟତା ଶାନ୍ତର ଶାନ୍ତ— ଜନ୍ମ—
 ଆପଣଙ୍କୁ ଆପଣଙ୍କୁ ପୁସ୍ତକ ବିଷୟ ଜାଣିତ ଯାଏ,
 ଆପଣଙ୍କୁ ଶାନ୍ତର ଶାନ୍ତ/ଶାନ୍ତ ଓ ଶାନ୍ତର ଶାନ୍ତ
 ଆପଣଙ୍କୁ ମୁଦ୍ରିତ କରାଯାଇ ଯାଏ, ଆପଣଙ୍କୁ— ଆପଣଙ୍କୁ—
 ଶାନ୍ତ— ଶାନ୍ତ ଶାନ୍ତ ପ୍ରକାଶ ଆପଣଙ୍କୁ— ଏହି
 ୨୨୨୧୧ ମୁଦ୍ରିତ କରାଯାଇ ଯାଏ, ଆପଣଙ୍କୁ— ଆପଣଙ୍କୁ—
 ବିଷୟ ଶାନ୍ତ— ଶାନ୍ତ ମୁଦ୍ରିତର ଶାନ୍ତର ଶାନ୍ତ
 କରାଯାଇ ପ୍ରକାଶ କରାଯାଇ ଯାଏ, ଆପଣଙ୍କୁ—
 ଶାନ୍ତ ଶାନ୍ତ ହେତୁ ନାହିଁ, କରାଯାଇ ଯାଏ, ଆପଣଙ୍କୁ—
 ଆପଣଙ୍କୁ— ଶାନ୍ତର ଶାନ୍ତ କରାଯାଇ,

ଆପଣ ଆପଣଙ୍କୁ— ଅନୁଷ୍ଠାନ ଅନୁଷ୍ଠାନ
 ନା କରାଯାଇ ଓ ଆପଣଙ୍କୁ ଶାନ୍ତର ଶାନ୍ତ ହେତୁ ଶାନ୍ତ କରାଯାଇ
 ହେତୁ ନା, ଆପଣଙ୍କୁ ଆପଣଙ୍କୁ ପ୍ରକାଶ ଶାନ୍ତ ଶାନ୍ତ
 ଆପଣଙ୍କୁ ଆପଣଙ୍କୁ/ଶାନ୍ତ ହେତୁ ଶାନ୍ତର ଶାନ୍ତ ଶାନ୍ତ

ଆପଣଙ୍କୁ ଆପଣଙ୍କୁ/ଶାନ୍ତର ଶାନ୍ତ— ଏହି
 ଶାନ୍ତର ଶାନ୍ତ କରାଯାଇ ଶାନ୍ତ ହେତୁ ନା,

- ଆପଣଙ୍କୁ ଶାନ୍ତ :
- ଶାନ୍ତ/ଶାନ୍ତ :
- ଶାନ୍ତର ଶାନ୍ତ :
- ଶାନ୍ତ :

at liberty to withdraw at any time from the study. Their refusal or withdrawal will not bar them from obtaining hospital treatment in any way.

5. The interview will be initially with the patient and then with the attendant of the patient. He will be taken to the family by the team and our purpose will be explained to them. If he agrees to cooperate with the ICDDR,B then the final forms will be filled up and consent obtained from them. This interview may take about 15-30 minutes.
6. The diarrhoea cases of the study families will receive treatment in ICDDR,B hospital. The milder cases, not admitted will also receive ORS treatment. The health education group will learn the hygienic practices and also get soap and pitcher during the period of study. If the spread can be prevented the members will be saved from the disease. This will outweigh the minor inconvenience.
7. The study needs to record the age, sex and number of the members of the family and some information about the water use pattern. None of these are confidential in nature.

FORM I

Cholera intervention study :

Family no. _____ Groups A/B/C Address _____

Hospital no. _____ Diagnosis DF _____ Culture _____

Dates of : Onset _____ Hospitalization _____ Study _____

	Names	Age	Sex	Relation with head	Occupation	Blood	
						1st	2nd
Index(1)							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

FORM 3

Cholera intervention study : Water collection and result form

Family No. _____ Group A/B/C _____

Dates of collection/ Result	Samples of domestic water storage					Open sources		
	Supply	Tubewell	Pond	Canal	River	Pond	Canal	River
Result								
Result								
Result								
Result								
Result								
Result								
Result								
Result								
Result								

NB. As in RS culture scheme

FORM 4

Cholera intervention study :

Guideline for Field Staff

Family No. _____ Staff assigned _____

Items	Days/Signature					Remarks
	1	2	3	4	5	
1. I have advised them thoroughly to wash hands with soap						
2. The members understood and willing to cooperate						
3. Sl. . . . washed hands in my presence						
4. I asked all members present whether they washed hands with soap after using latrine and explained them again						
5. I have asked all members to wash hands with soap every time before taking food						
6. The pitchers have been filled with water in my presence						
7. Soap and storage jars are adequate						
8. The soap has been used for washing hands only.						
9. I have explained them why and how to use chlorinated water for all domestic uses						
10. I have mixed chlorine tablet in the jar myself as demonstration						
11. I left 3 tablets of chlorine for additional water to be refilled in the afternoon						
12. The left over water in all the pitchers smells chlorine						

N.B. To be signed by Health Assistant daily against 12 points for 5 days.

TABLE I - Subsequent isolation rates of V. cholerae from RS
of contacts

Groups	No. Contacts	No. infected	No. with symptoms
Hand wash(A)			
Control(B)			
Chlorination(C)			

Significance A vs B, P =

B vs C, P =

Table 3 - Isolation of Vibrio from different domestic water sources

Groups	No. cultured	Sources		
		City Supply(a)	Hand pump (b) tubewell	Ponds/canal/river(c)
A				
B				
C				

Significant tests

a vs b P =

a vs c P =

b vs c P =

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