

AN EVALUATION OF THE ICDDR,B TRAINING PROGRAMME :
DIARRHOEAL DISEASE EPIDEMIC CONTROL

147

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PREFACE

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) is an autonomous, international, philanthropic, non-profit centre for research, education, training and clinical service. The Centre is derived from the Cholera Research Laboratory (CRL). Its activities are to undertake and promote study, research and dissemination of knowledge in diarrhoeal diseases and the directly related subjects of nutrition and fertility--with a view to developing improved health care methods and to prevent and control diarrhoeal diseases and improve public health programmes, especially in developing countries. The ICDDR,B issues an annual report, working papers, scientific reports, special publications, monographs, theses, dissertations, and a bi-monthly newsletter, which demonstrates the type of research activities currently in progress. The views expressed in these papers are those of the authors, and do not necessarily represent the views of the ICDDR,B. They should not be quoted without the authors' permission.

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ABSTRACT

In 1983, a country-wide programme, entitled "Epidemic Control Preparedness," was sponsored to develop health manpower at the Upa-zila (county) level in Bangladesh. As part of the programme, health staff were trained to identify diarrhoeal epidemic situations, to manage epidemics in progress, to control epidemic situations and to prevent further spread. To evaluate the training quality of Upa-zila level health personnel, 16 resource persons (8 medical officers and 8 sanitary inspectors) and 80 trained Bangladesh Health Services field workers were interviewed in depth, at 8 randomly-selected Upa-zilas. The training was found beneficial overall. However, significant improvements were recommended in supply maintenance and in provision of fast field worker transportation, particularly during disease outbreaks.

INTRODUCTION

Cholera outbreaks occur in distinctive seasonal patterns every year in Bangladesh, affecting thousands of the country's 90 million people. Since its inception as the Cholera Research Laboratory in the early 1960's, the ICDDR,B has cooperated with the Government to intervene in epidemics, in order to control and prevent the spread of diarrhoeal diseases. These interventions have been accomplished with the assistance of local government authorities and community members.

From more than two decades of epidemic handling experience, the ICDDR,B and the Government have determined that increased health manpower development at the Upa-zila level is essential for effective epidemic control and prevention in rural Bangladesh. To provide effective diarrhoea epidemic control services to Bangladesh's 90 million people, most of them rural, the ICDDR,B formulated an economically feasible strategy, aimed at producing trained personnel within the existing health infrastructure.

In 1983, a programme, entitled "Epidemic Control Preparedness", was co-sponsored by the ICDDR,B, the Government Ministry of Health and Population Control, and the Ford Foundation. The goal was to develop health manpower at the Upa-zila level. The programme plans included development of Government health staff, who could independently identify diarrhoeal epidemic situations, manage epidemics in progress, and prevent further spread.

In the programme's first five months, the ICDDR,B trained 61 doctors and 64 sanitary inspectors from 74 Upa-zilas identified as epidemic-prone. In addition to the Upa-zila health officers' epidemic control training, the ICDDR,B began training Government medical doctors, in an extensive on-the-job training Epidemic Control Programme. These highly trained doctors not only learned in-depth epidemiology and epidemic control techniques, but also evaluation skills which will help the Government adequately plan and implement its future country-wide Epidemic Control trainers' training programme. This report covers the first evaluation done by those doctors.

The Upa-zila and specialized epidemic control training programmes still going on in June 1984 (when this report was written), trained 121 Upa-zila health officer and 14 Government doctors. After their own training at the ICDDR,B, many of these health officers held secondary epidemic control training sessions for an estimated nearly 5,000 village health workers.

The course was designed to attain the following objectives:

- a) To acquaint trainees with all aspects of diarrhoeal diseases, such as etiology, pathophysiology, epidemiology, management and prevention;
- b) To provide trainees with modern conceptions of diarrhoea management, using ORT and Intravenous Fluids (IVF);

- c) To introduce participants to the methodology of epidemiological investigation of diarrhoeal disease epidemics;
- d) To teach participants training techniques which can be used successfully to teach grass-roots level health workers and community members how to control and prevent diarrhoeal epidemics;
- e) To teach participants how to establish and operate diarrhoeal treatment centres in rural areas, with the help of local communities.

BACKGROUND

Since the Government and the ICDDR,B plan to continue this specialized training programme, an evaluation was considered essential -- to determine the extent of Upa-zila health officers' retention of knowledge and performance at the field level, as well as their skills in teaching what they learned to village health workers.

AIMS AND OBJECTIVES

With that purpose, the training programme was evaluated with the following objectives:

- a) To assess the extent of knowledge retention acquired during the training courses;
- b) To determine the amount of subsequent training given village field workers by the trained Upa-zila health officers;
- c) To assess the application of field knowledge and its effectiveness in strengthening field workers' skill in epidemic control;
- d) To identify acute problem areas in diarrhoeal outbreak management;
- e) To determine needed improvements for training courses, if any.

METHODOLOGY

In the first phase, 61 doctors and 64 sanitary inspectors from 74 Upa-zilas identified as epidemic-prone areas were trained. A two-stage sampling procedure was adopted, to select respondents as interviewees for the training

programme evaluation. Sixteen (13%) course participants from 8 Upa-zilas were selected randomly for evaluation. After employee logs from those 8 Upa-zilas were reviewed, 10 field workers* (GHA and FWW) were selected randomly from each Upa-zila, giving a total sample of 80 field workers and 16 Upa-zila health officers (UZHOs).

The study's sample design is shown below:

Dhaka Division	Khulna Division	Rajshahi Division	Chittagong Division
Dewanganj Upa-zila, Jamalpur District: 1 M.O. & 1 S.I., 10 field workers.	Galachipa Upa-zila, Patuakhali District: 1 M.O. & 1 S.I., 10 field workers.	Domar Upa-zila, Rangpur District: 1 M.O. & 1 S.I., 10 field workers.	Laksam Upa-zila, Comilla District: 1 M.O. & 1 S.I., 10 field workers.
Muksudpur Upa-zila, Faridpur District: 1 M.O. & 1 S.I., 10 field workers	Khoksa Upa-zila, Kushtia District: 1 M.O. & 1 S.I., 10 field workers	Chilmari Upa-zila, Rangpur District: 1 M.O. & 1 S.I., 10 field workers	Satkania Upa-zila, Chittagong District: 1 M.O. & 1 S.I., 10 field workers.

Development of questionnaires and checklist

Two questionnaires were prepared, one for the UZHO resource persons (both in English and in Bengali) and the other for the field workers (in Bengali). These questionnaires were designed to collect information on the extent and retention of knowledge of both field workers and the UZHOs. A checklist was also designed with two parts, and was filled in by the evaluator, to 1) identify problem areas during the field application of the knowledge and skill, and 2) to help identify ways to improve epidemic service delivery.

Pre-testing of questionnaires and check-list

The questionnaires and the checklist were field-tested in two Upa-zila Health Complexes, at Kalihati and Madhupur in Tangail District. Three UZHOs and 20 randomly-selected field workers were the respondents. On the basis of pre-test findings, the questionnaires and the checklist were finalized.

Training of interviewers

Four doctors deputed to the ICDDR,B from the Ministry of Health acted as interviewers. To ensure the quality of data, they were trained on survey and evaluation techniques for 2 weeks. This training also included discussions and participation in the 5-day field trial of the evaluations at Kalihati and Madhupur Upa-zilas.

* GHA = Government Health Assistant
FWW = Family Welfare Worker

Field procedure

Four one-member evaluation teams were formed, utilizing the above trained Government doctors. Through the Director-General of Health Services and concerned civil surgeons representing the districts to be evaluated, the UZHOs (resource persons) were informed at least 3 weeks in advance of the training course evaluation. One week before the evaluation, they received a letter from the Director-General of Health Services, requesting full cooperation. In future evaluations, either all or none of the concerned UZHOs will be notified in advance. This time, a primary objective was to evaluate the UZHOs' secondary training of field workers. Hence, notification was given to ensure that those selected already would have done such secondary training.

Each team covered 2 Upa-zilas. Questionnaires were answered by the UZHOs and field workers in the presence of the interviewers. The evaluation team filled in the checklist, after personally interviewing, observing and verifying numbers for health complex field staff, health personnel trained, and available ORS packets and cholera saline bags available at the health complex and the nearby sub-centre. Moreover, certain problems were identified, including inadequate buffer or reserve stock supplies, and operational difficulties during diarrhoeal outbreaks.

RESULTS

Detailed answers to the three questionnaires administered to UZHOs and trained field workers are presented here (a copy of each questionnaire is included in Appendices A, B and C).

A. Resource persons

Sixteen resource persons (8 medical officers and 8 sanitary inspectors) were interviewed.

1. Knowledge of how to suspect cholera

Rice-watery stool (100%), acute onset (87%), rapid dehydration onset (87%), effortless purging (69%), and similar illness in the family or neighbourhood (62%) were considered as the presentable evidence features for suspecting a cholera case. However, such incorrect answers as tenesmus (12%) and fever (6%) also were given by UZHOs (Table I).

Of the UZHOs, 37% answered all 5 questions correctly, 44% answered 4 correctly, and 12% answered 3 correctly. Overall, 94% of the UZHOs correctly answered three of the five questions.

TABLE I--RESOURCE PERSONS' KNOWLEDGE ACCORDING TO CRITERIA FOR SUSPECTING CHOLERA CASES

Resource persons	Rice-watery stool	Acute onset	Rapid onset of dehydration	Effortless purging	Simultaneous occurrence of diarrhoea illness in the same family or neighbourhood	Tenesmus	Fever	Prolonged onset	Abdominal cramp
M. O.	8 (100)	8 (80)	7 (87)	7 (87)	6 (75)	1 (12)	1 (12)	-	-
S. I.	8 (100)	6 (75)	7 (87)	4 (50)	4 (50)	1 (12)	-	-	-
Total	16 (100)	14 (87)	14 (87)	11 (69)	10 (62)	2 (12)	1 (6)	-	-

Figures in parentheses are percentages

2. Knowledge of dehydration

Two evidences of mild, moderate and severe dehydration were answered correctly by 81%, 81% and 94% of respondents. The rest gave one correct answer, on respective dehydration degrees (Table II).

TABLE II--KNOWLEDGE OF RESOURCE PERSONS' DEHYDRATION ASSESSMENT

Respondents	No. of correct answers about dehydration degree					
	Mild*		Moderate		Severe	
	1	2	1	2	1	2
M.O.	1(12)	7(87)	1(12)	7(87)	-	8(100)
S.I.*	1(12)	6(75)	2(25)	6(75)	1(12)	7(87)
Total	2(12)	13(81)	3(19)	13(81)	1(6)	15(94)

* One did not respond

Figures in parentheses are percentages

3. Knowledge of ORS contra-indications

Most UZHOs considered unconsciousness (94%), paralytic ileus (87%), excessive and persistent vomiting (75%) and convulsion (62%) as circumstances when ORS should not be given diarrhoea patients. Moreover, 25% considered extreme weakness as one ORS contra-indication. Such incorrect replies as mild vomiting and mild dehydration with fever suggestive of rotavirus diarrhoea also were given as contra-indications by some respondents (Table III).

Twelve percent of respondents correctly answered all 5 questions, 44% answered 4 of 5 correctly, and another 25% correctly answered 3. However, 81% were able to identify at least three contra-indications.

4. Knowledge of appropriate therapy (ORS, IVF and antibiotics) according to clinical conditions

Of the respondents, 44% were correct in using ORT in clinical rotavirus diarrhoea. Use of appropriate therapy in mild

TABLE III--RESOURCE PERSONS' KNOWLEDGE ON CONTRA-INDICATIONS OF ORS ACCORDING TO CRITERIA

Resource persons	Unconsciousness	Paralytic ileus	Excessive & persistent vomiting	Convulsion	Extreme fatigue	Mild dehydration with fever	Mild vomiting
M. O.	8(100)	8(100)	7(87)	6(75)	3(37)	-	-
S. I.	7(87)	6(75)	5(62)	4(50)	1(12)	1(12)	1(12)
Total	15(94)	14(87)	12(75)	10(62)	4(25)	1(6)	1(6)

Figures in parentheses are percentages

dehydration was correctly stated by 81%, while 87% were correct about how to treat severely fluid/electrolyte-depleted cases (Table IV).

5. Knowledge of diet during diarrhoea

All respondents suggested green coconut water, while 94% considered soft rice as well as banana as proper foods for diarrhoea patients. Breast milk (87%) and soaked "chira" (87%) also were referred to and no one opted for withholding food during diarrhoea (Table V).

Eighty-one percent knew all 5 food items, while 93% correctly stated at least 3 food items to be given diarrhoea patients.

6. Knowledge of appropriate treatment place for severely dehydrated patients during an explosive outbreak

Makeshift hospitals were correctly pinpointed by 75% as an effective tool for treating moribund cases. However, 25% considered that severe cases could be treated at home (Table VI).

7. Knowledge of detecting diarrhoeal epidemics

Eighty-seven percent considered continuous systematic diarrhoeal surveillance to be one of the best ways of detecting diarrhoeal outbreaks. An increased number of acute diarrhoea cases reporting to health complexes also was stated (81%) as another way to detect epidemics. Finally, 69% chose diarrhoeal death(s) occurrence with a short onset death interval as a detection criterion (Table VII).

Forty-four percent correctly described all three criteria for diarrhoeal disease epidemic detection, 50% correctly recognised 2 criteria, and 6% gave only one correct answer.

8. Knowledge of proper assessment of severe dehydration, appropriate fluid therapy for initial rehydration, type of fluid for maintenance rehydration and administration time for initial fluid therapy.

Ninety-four percent correctly stated the dehydration degree (severe) according to set clinical features; while 87% named the proper fluid, and 69% calculated the exact amount of I.V.F. based on admission body weight needed for initial rehydration. Another 87% correctly described fluid type (ORS) for subsequent maintenance therapy, and 15 (94%) knew the correct time intervals for fluid administration during initial rehydration (Table VIII).

TABLE IV--RESOURCE PERSONS' KNOWLEDGE OF APPROPRIATE THERAPY ACCORDING TO CLINICAL CONDITIONS

Resource persons	Infants with watery diarrhoea, vomiting & history of fever	Patients with 5 days watery diarrhoea but mildly dehydrated	Patients with severe dehydration
M.O.	3 (37)	8 (100)	8 (100)
S.I.	4 (50)	5 (62)	6 (75)
Total	7 (44)	13 (81)	14 (87)

Figures in parentheses are percentages

TABLE V--DIETARY PREFERENCE OF RESOURCE PERSONS DURING DIARRHOEA

Resource persons	Preference on diet during diarrhoea					
	Green coconut water	Banana	Soft rice	Soaked 'chira'	Breast milk	No food at all
M.O.	8 (100)	8 (100)	7 (87)	7 (87)	8 (100)	-
S.I.	8 (100)	7 (87)	8 (100)	7 (87)	6 (75)	-
Total	16 (100)	15 (94)	15 (94)	14 (87)	14 (87)	-

Figures in parentheses are percentages

TABLE VI--KNOWLEDGE OF RESOURCE PERSONS' ABOUT APPROPRIATE
PLACE TO TREAT SEVERELY DEHYDRATED PATIENTS
DURING AN EXPLOSIVE OUTBREAK

Resource persons	Makeshift hospital	Household	Health complex
M.O.	6 (75)	2 (25)	-
S.I.	6 (75)	2 (25)	-
Total	12 (75)	4 (25)	-

Figures in parentheses are percentages

9. Knowledge of vulnerable age and sex during cholera epidemics

Resource persons correctly stated ages and sexes of persons who contracted cholera during an epidemic in, respectively, 75% and 62% of cases (Table IX).

10. Knowledge of giving plain water during diarrhoeal rehydration therapy

Ninety-four percent knew that plain water can be used for rehydration (particularly for a child) (Table X).

11. Knowledge of diarrhoeal death due to dehydration

The question, "If a cholera patient dies within 2 hours of admission, what may be the most probable cause?" was answered correctly by 94% (Table XI).

TABLE VII--RESOURCE PERSONS' PREFERENCE OF CRITERIA FOR DIARRHOEAL EPIDEMIC DETECTION

Resource persons	Continuous systematic diarrhoeal surveillance	Increased number of acute diarrhoeal cases reporting to the health complex	Occurrence of diarrhoeal deaths in a locality with short onset-death interval	Rumour
M. O.	7 (87)	7 (87)	6 (75)	-
S. I.	7 (87)	6 (75)	5 (62)	1 (12)
Total	14 (87)	13 (81)	11 (69)	1 (6)

Figures in parentheses are percentages

TABLE VIII--RESOURCE PERSONS' KNOWLEDGE OF PROPER ASSESSMENT OF SEVERE DEHYDRATION, APPROPRIATE FLUID THERAPY AND ADMINISTRATION TIME FOR INITIAL FLUID THERAPY

Resource persons	Proper assessment of severe dehydration	Proper type of fluid for rehydration therapy	Proper time to administer initial rehydration	Type of fluid for maintenance therapy	Appropriate amount for initial rehydration
M. O.	8 (100)	8 (100)	8 (100)	7 (87)	8 (100)
S. I.	7 (87)	6 (75)	7 (75)	7 (87)	3 (37)
Total	15 (94)	14 (87)	15 (94)	14 (87)	11 (69)

Figures in parentheses are percentages

TABLE IX--RESOURCE PERSONS' KNOWLEDGE OF MOST VULNERABLE
AGES AND SEXES DURING CHOLERA EPIDEMICS

Resource persons	Correct answers	
	Age (15-39 yrs)	Sex (Female)
M.O.	7 (87)	5 (62)
S.I.	5 (62)	5 (62)
Total	12 (75)	10 (62)

Figures in parentheses are percentages

TABLE X--RESOURCE PERSONS' KNOWLEDGE OF ADMINISTERING
PLAIN WATER DURING DIARRHOEA

Resource persons	Answer	
	Correct	Incorrect
M.O.	8 (100)	-
S.I.	7 (87)	1 (12)
Total	15 (94)	1 (6)

Figures in parentheses are percentages

12. Comments on the usefulness of the training course

Most UZHOs (94%) considered the ICDDR,B diarrhoea training course very useful. Moreover, 6 percent described the course as useful in developing knowledge and skill in diarrhoeal disease management.

TABLE XI--RESOURCE PERSONS' KNOWLEDGE OF CAUSE
OF DEATH DUE TO DIARRHOEA

Resource persons	Answer	
	Correct	Incorrect
M.O.	8 (100)	-
S.I.	7 (87)	1 (6)
Total	15 (94)	1 (6)

Figures in parentheses are percentages.

B. Trainees

Eighty randomly-selected field workers at the Upa-zila level were interviewed.

1. Knowledge of dehydration

Of the field workers, 79% correctly answered all 4 dehydration signs and/or symptoms, while 21% gave 3 correct answers. All respondents were able to identify at least 3 of the 4 correct signs and/or symptoms (Table XII).

Sunken eyes (82%), thirst (69%), dry tongue (62%) and loss of skin elasticity (55%) were the four main dehydration signs and/or symptoms named.

2. Knowledge of appropriate time to start ORT

When asked to reply on the time to start ORT, almost all field workers (99%) answered correctly (Table XIII).

3. Knowledge of ORS contra-indications

With respect to when ORT should not be given, most respondents (95%) answered "unconsciousness," 80% said "convulsion," and 26% considered "very dry tongue with very feeble pulse" to be a contra-indication. Such incorrect answers as mild vomiting (10%) and symptoms suggestive of rotavirus diarrhoea (7%) also were stated (Table XIV).

TABLE XII--FIELD WORKERS' KNOWLEDGE OF DEHYDRATION

Name of Upa-zila	No. of correct answers on signs and/or symptoms of dehydration	
	4	3
Satkania	8 (80)	2 (20)
Laksam	7 (70)	3 (30)
Chilmari	10 (100)	-
Domar	9 (90)	1 (10)
Khoksa	7 (70)	3 (30)
Galachipa	5 (50)	5 (50)
Dewanganj	7 (70)	3 (30)
Muksudpur	10 (100)	-
Total	63 (79)	17 (21)

Figures in parentheses are percentages

4. Knowledge of diet during diarrhoea

With regard to giving food as well as ORS, all respondents favoured providing food. Half of the respondents were able to name 4 proper food items to be given during diarrhoea, while 21% identified at least 3 such food items (Table XV).

Ninety percent favoured breast milk, 89% green coconut water and 86% soft rice. Banana and soaked "chira" also were mentioned by, respectively, 62% and 60%, while 49% said plain water can be given along with foods.

5. Knowledge of suspected cholera

Thirty-one percent correctly answered all 4 evidences of suspected cholera, 41% identified 3 and 22% named 2 (Table XVI).

TABLE XIII-FIELD WORKERS' KNOWLEDGE OF APPROPRIATE TIME
TO START ORT

Name of Upa-zila	As early as possible	Within 12 hrs. of onset
Satkania	10(100)	-
Laksam	10(100)	-
Chilmari	10(100)	-
Domar	10(100)	-
Khoksa	10(100)	-
Galachipa	10(100)	-
Dewanganj	9(90)	1(10)
Muksudpur	10(100)	-
Total	79(99)	1(1)

Figures in parentheses are percentages

TABLE XIV--FIELD WORKERS' KNOWLEDGE OF ORT CONTRA-INDICATIONS

Name of Upa-zila	Unconsciousness	Convulsion	Very dry tongue with very feeble pulse	Mild vomiting	Infants with watery stool and fever
Satkania	9 (90)	10 (100)	1 (10)	3 (30)	1 (10)
Laksam	10 (100)	8 (80)	2 (20)	-	2 (20)
Chilmari	10 (100)	10 (100)	5 (50)	1 (10)	-
Domar	10 (100)	10 (100)	4 (40)	1 (10)	-
Khoksa	10 (100)	7 (70)	-	-	-
Galachipa	10 (100)	3 (30)	2 (20)	2 (20)	1 (10)
Dewanganj	7 (70)	6 (60)	5 (50)	1 (10)	2 (20)
Muksudpur	10 (100)	10 (100)	2 (20)	-	-
Total	76 (95)	64 (80)	21 (26)	8 (10)	6 (7)

Figures in parentheses are percentages

TABLE XV--FIELD WORKERS' KNOWLEDGE OF DIET DURING DIARRHOEAL ILLNESS

Name of Upa-zila	Number of correct answers					
	6	5	4	3	2	1
Satkania	2 (20)	3 (30)	4 (40)	1 (10)	-	-
Laksam	5 (50)	3 (30)	1 (10)	1 (10)	-	-
Chilmari	6 (60)	3 (30)	1 (10)	-	-	-
Domar	3 (30)	4 (40)	1 (10)	2 (20)	-	-
Khoksa	1 (10)	3 (30)	1 (10)	4 (40)	1 (10)	-
Galachipa	-	1 (10)	2 (20)	4 (40)	2 (20)	1 (10)
Dewanganj	1 (10)	-	4 (40)	5 (50)	-	-
Muksudpur	4 (40)	1 (10)	5 (50)	-	-	-
Total	22 (27)	18 (22)	19 (24)	17 (21)	3 (4)	1 (1)

Figures in parentheses are percentages

TABLE XVI--FIELD WORKERS' KNOWLEDGE OF SUSPECTED CHOLERA CASES

Name Upa-zila	Number of correct answers			
	4	3	2	1
Satkania	5 (50)	1 (10)	3 (30)	1 (10)
Laksam	-	5 (50)	5 (50)	-
Chilmari	6 (60)	4 (40)	-	-
Domar	7 (70)	3 (30)	-	-
Khoksa	2 (20)	7 (70)	1 (10)	-
Galachipa	2 (20)	6 (60)	1 (10)	1 (10)
Dewanganj	1 (10)	3 (30)	5 (50)	1 (10)
Muksudpur	2 (20)	4 (40)	3 (30)	1 (10)
Total	25 (31)	33 (41)	18 (22)	4 (5)

Figures in parentheses are percentages

Effortless purging (86%), rapid dehydration onset (84%), similar diarrhoeal illness in the family or neighbourhood (69%) and acute onset (57%) were the main evidences given for suspecting cholera. However, such incorrect answers as abdominal pain (21%), prolonged onset (15%), bloody mucoid stool (6%), tenesmus (2%), and fever (1%) also were offered.

6. Knowledge of detection of diarrhoeal outbreaks

Eighty percent correctly answered 2 questions on diarrhoeal outbreak detection, while the remaining 20% gave 1 correct answer (Table XVII).

Ninety-one percent said that occurrence of death(s) within a few hours of diarrhoea onset could be considered as a sign of a diarrhoea epidemic. Another 86% said a better indication is the number of cases divided by the average number of cases. Incorrect answers, such as information from local medicine shops or rumours, also were given by, respectively, 9% and 4% of the respondents.

TABLE XVII--FIELD WORKERS' KNOWLEDGE OF HOW TO
DETECT DIARRHOEAL OUTBREAKS

Name of Upa-zila	Number of correct answers	
	2	1
Satkania	9(90)	1(10)
Laksam	5(50)	5(50)
Chilmari	9(90)	1(10)
Domar	9(90)	1(10)
Khoksa	10(100)	-
Galachipa	9(90)	1(10)
Dewanganj	8(80)	2(20)
Muksudpur	5(50)	5(50)
Total	64(80)	16(20)

Figures in parentheses are percentages

7. Knowledge of immediate approach to epidemic control activities

Early case management and establishment of makeshift hospitals were given as answers by, respectively, 57% and 12%. Considering these two answers as correct and combining these for "immediate case management," gives a correct answer total of 69%. However, such incorrect answers as health education, reporting to the Upa-zila health complex and vaccination were stated to be priorities by, respectively, 19%, 9% and 2% of the respondents (Table XVIII).

8. Knowledge of ideal I.V. fluid to treat diarrhoeal dehydration

Cholera saline was considered as the ideal I.V. fluid to correct diarrhoeal dehydration by 69%, while 17% selected normal saline. Incorrect knowledge was shown by the 14% who considered 5% dextrose in water as the ideal I.V. rehydration fluid (Table XIX).

TABLE XVIII--FIELD WORKERS' KNOWLEDGE OF PRIORITIES IN EPIDEMIC CONTROL APPROACHES

Name of Upa-zila	Early case management	Set-up of makeshift hospital	Health education	Reporting to Upa-zila H.C.	Vaccination
Satkania	2 (20)	6 (60)	1 (10)	1 (10)	-
Laksam	6 (60)	2 (20)	2 (20)	-	-
Chilmari	9 (90)	-	-	1 (10)	-
Domar	8 (80)	-	-	2 (20)	-
Khoksa	5 (50)	-	4 (40)	1 (10)	-
Galachipa	4 (40)	-	4 (40)	-	2 (20)
Dewanganj	5 (50)	2 (20)	2 (20)	1 (10)	-
Muksudpur	7 (70)	-	2 (20)	1 (10)	-
Total	46 (57)	10 (12)	15 (19)	7 (9)	2 (2)

Figures in parentheses are percentages

TABLE XIX--FIELD WORKERS' KNOWLEDGE OF IDEAL I.V. FLUID TO
CORRECT DIARRHOEAL DEHYDRATION

Name of Upa-zila	Cholera saline	Normal saline	5% dextrose in water
Satkania	4 (40)	4 (40)	2 (20)
Laksam	5 (50)	2 (20)	3 (30)
Chilmari	10 (100)	-	-
Domar	10 (100)	-	-
Khoksa	5 (50)	4 (40)	1 (10)
Galachipa	4 (40)	1 (10)	5 (50)
Dewanganj	8 (80)	2 (20)	-
Muksudpur	9 (90)	1 (10)	-
Total	55 (69)	14 (17)	11 (14)

Figures in parentheses are percentages

9. Knowledge of home-made solution

Here, 82% knew the correct procedure, including the proper measures and ingredients for preparation of home-made ORS (Table XX).

10. Knowledge of ideal place to treat diarrhoeal dehydration

A patient's home was considered by 85% to be the ideal place for initiating ORT, while 15% named the health complex. None preferred medicine shops (Table XXI)

11. Comments on the usefulness of the training course

Most (86%) UZHOs considered the Upa-zila level training courses by resource persons "very useful," while 9% described the course as "useful," and 5% said the course had offered little benefit in developing knowledge and skills.

TABLE XX--FIELD WORKERS' KNOWLEDGE OF PREPARATION OF
HOME-MADE SOLUTION

Name of Upa-zila	Correct response	Incorrect response
Satkania	7 (70)	3 (30)
Laksam	7 (70)	3 (30)
Chilmari	7 (70)	3 (30)
Domar	10 (100)	-
Khoksa	10 (100)	-
Galachipa	7 (70)	3 (30)
Dewanganj	8 (80)	2 (20)
Muksudpur	10 (100)	-
Total	66 (82)	14 (17)

Figures in parentheses are percentages

C. Application of knowledge

1. Preference for depot holders at community level

As to the training of persons to act as community "depot holders" of ORS packets, 56% suggested field workers or Union Parishad members should serve as depot holders. Also suggested were community leaders (49%), volunteers (37%), school teachers (31%), religious leaders (19%) and village practitioners (25%). Only 12% opted for mothers to act as depot holders.

2. Training programme at Upa-zila level and availability of supplies

The UZHOs or resource persons evaluated had trained 70% of the field staff in their health complexes. In checking the records of health complexes and sub-centres, evaluators found that 34,580 ORS packets were available in the 8 health complexes (mean 4,322, range 450-15,300). However, only 2,491 ORS packets were available in 7 sub-centres (mean

TABLE XXI--FIELD WORKERS' KNOWLEDGE OF IDEAL PLACE TO TREAT
DIARRHOEAL DEHYDRATION

Name of Upa-zila	Household by oral rehydration therapy	Health complex by I.V. fluid	Medicine shop by oral rehydration therapy
Satkania	10(100)	-	-
Laksam	8(80)	2(20)	-
Chilpari	10(100)	-	-
Domar	10(100)	-	-
Khoksa	9(90)	1(10)	-
Galachipa	9(90)	1(10)	-
Dewanganj	6(60)	4(40)	-
Muksudpur	6(60)	4(40)	-
Total	68(85)	12(15)	-

Figures in parentheses are percentages

356, range 21-2,000) on the days the evaluators visited. As to available I.V. saline bags (500 cc), a mean of 129 bags was found in health complexes and 9 bags in sub-centres (Table XXII).

3. Reason for not maintaining buffer stock

The evaluators tried to determine the reasons for the inadequate reserves of ORS packets and I.V. saline bags at the Upa-zila and sub-centre levels. Sixty-three percent of Upa-zila Health and Family Planning officers (H&FPOs) blamed inadequate supplies from district reserves, and another 37% said they had not been instructed in proper reserve maintenance. At the sub-centre level, 71% also said they had not been told about getting buffer stocks from the Upa-zila level, and 43% reported that they were not getting a sufficient supply from the health complexes.

TABLE XXII--NUMBER OF TOTAL FIELD STAFF IN THE HEALTH COMPLEX, NUMBER TRAINED, NUMBER OF ORS PACKETS AVAILABLE IN THE HEALTH COMPLEX AND SUB-CENTRE, AND NUMBER OF I.V. BAGS AVAILABLE IN THE HEALTH COMPLEX AND SUB-CENTRE ON THE VISIT DATE

Name of Upa-zila	Total field staff	No. of field staff attended training	Number of ORS packets		I.V. bags (500 cc)	
			Health complex	Sub-centre	Health complex	Sub-centre
Satkania	41	32 (78)	2510	215	55	3
Laksam	95	20 (21)	15300	-	209	-
Chilmari	40	31 (77)	2475	21	106	-
Domar	72	65 (90)	735	55	33	20
Khoksa	12	12 (100)	1860	No sub-centre	303	No sub-centre
Galachipa	61	56 (92)	1750	200	104	22
Dewanganj	75	74 (99)	9500	2000	120	20
Muksudpur	109	62 (57)	450	-	102	-
Total	505	352 (70)	34580	2491	1032	65
Mean			4322	356	129	9

Figures in parentheses are percentages

D. Problem areas during diarrhoeal outbreaks

1. Supply shortages

Respondents were asked to state the problems they faced in dealing with diarrhoeal outbreaks. The main ones listed were shortages of ORS and I.V. and transportation difficulties for field staff. Both H&FPOs and field level staff blamed transportation problems as most severe (87% and 100%, respectively), and 37% of both groups also said that ORS shortages were a problem (Table XXIII).

TABLE XXIII--PROBLEMS FACED DURING LAST EPIDEMIC

Respondents	ORS shortage	I.V. shortage	Transportation problem
Upa-zila H&FPO N = 8	3 (37)	5 (62)	7 (87)
Field level N = 8	3 (37)	6 (75)	8 (100)
Sub-centre N = 7	6 (86)	7 (100)	3 (43)

Figures in parentheses are percentages

DISCUSSION

The two main objectives of this evaluation were to assess the extent of knowledge retained by resource persons (UZHOs) as a result of the ICDDR,B training and to determine how much knowledge was passed on to the field workers the UZHOs subsequently trained. All UZHOs were found knowledgeable about dehydration status assessment, diarrhoea management and overall epidemic control activities. Field workers were found quite knowledgeable in recognising dehydration, disease management and field assessment and outbreak control. In each Upa-zila where an evaluation was done, field workers seemed to have benefitted from the training, especially regarding

field assessment of a diarrhoeal disease outbreak and how to handle it. It was concluded that the present training course should contribute to a substantial decrease in diarrhoeal disease fatalities, particularly during outbreaks.

However, it also was found that UZHOS had little knowledge of a) appropriate therapy for clinical viral diarrhoeas; and b) which age groups and sexes are especially vulnerable during cholera epidemics. As for field workers, they were weak in knowledge of a) the immediate approach to outbreak control; b) the ideal I.V. fluid for rehydration; and c) preparation of home-made ORS. Since no training course can be expected to impart total knowledge to all participants, these deficiencies cannot be blamed on the course itself. Still, there undoubtedly is room for improvement of the training programme. Moreover, one way to achieve such improvement would be long-term cooperation among the ICDDR,B, the resource persons and field workers, through distribution of educational materials and refresher training courses. These measures surely would be helpful in sustaining the knowledge imparted and strengthening its application to the field.

Properly trained manpower, sufficient supplies and fast transportation are the main prerequisites for effective diarrhoeal disease control at the community level, including prompt intervention to avoid unnecessary loss of lives. Anticipation of outbreaks and plans for combatting them are critical, due to the diseases' fulminating nature and the need for extensive fluid therapy. Moreover, at all times, adequate rehydration supplies must be available. This study reveals that training to develop health manpower in the existing infrastructures is progressing satisfactorily. However, unless the other two vital variables are timely and properly ensured at all levels (community, field workers and health facilities), especially before the start of epidemics, and unless proper replenishment of supplies occurs during ongoing epidemics, successful health services delivery cannot be achieved.

The evaluation also should look at the relevance and suitability of course content. Perhaps for future evaluation, other health workers providing MCH-FP services, as well as community people, should be included, to address the effectiveness of transferring knowledge to the household level.

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QUESTIONNAIRE FOR EVALUATION OF TRAINING OF M.Os. AND S.Is.
ON DIARRHOEAL DISEASE EPIDEMIC CONTROL

It is not a personal judgment. It will evaluate the training course offered at ICDDR,B. All information will be confidential.

Name of the interviewer _____

Upa-zila _____

District _____

Date _____

1. Name _____

Designation _____

2. When did you receive your training at ICDDR,B _____

3. Was the training course (answer one)

a) Very useful

b) Useful

c) Improvement of knowledge and skill was not much.

4. A suspected case of cholera is defined by (put ✓ mark, answer more than one).

a) Fever

b) Acute onset

c) Rice watery stool

d) Bloody mucoid stool

e) Rapid dehydration

f) Prolonged onset

g) Effortless purging

h) Abdominal cramp

i) Tenesmus

j) Simultaneous occurrence of diarrhoeal illness in the same family or neighbourhood.

5. Give at least 2 signs and/or symptoms for mild, moderate and severe dehydration?

Mild

1.

2.

3.

Moderate

1.

2.

3.

Severe

1.

2.

3.

There may be more than one correct answer to one question. Place tick mark(s).

6. When ORS cannot be given (answer more than one) ?

- a) Mild vomiting
- b) Mild dehydration with fever
- c) Convulsion
- d) Unconscious
- e) Extreme fatigue
- f) Bloody mucoid diarrhoea
- g) Excessive and persistent vomiting
- h) Paralytic ileus

7. Which patient should get ORS, antibiotics and/or I.V. fluid ?

	<u>ORS</u>	<u>Antibiotic</u>	<u>IVF</u>
a) Infant with watery diarrhoea, vomiting and history of fever	----	-----	----
b) Patient with 5 days watery diarrhoea but mildly dehydrated	----	-----	----
c) Patient with severe dehydration in coma	----	-----	-----

8. What should be the diet of a diarrhoea patient (answer more than one) ?

- a) Soft rice
- b) Banana
- c) Green coconut water
- d) No food at all
- e) Soaked 'chira'
- f) Breast milk

9. If the situation is explosive in a remote area having poor communication with the Health Complex, where would you treat severely dehydrated diarrhoea patients (answer one) ?

- a) Health complex
- b) Household
- c) Makeshift hospital

10. How do you detect diarrhoeal epidemic (answer more than one) ?

- a) Rumour
- b) Increased number of acute diarrhoea cases reporting to the health complex

- c) Occurrence of diarrhoeal death(s) in a locality with short onset-death interval
- d) Continuous systematic surveillance

11. Suppose signs and symptoms of a patient are (Body weight 35 kg):
- a) Very dry tongue
 - b) Imperceptible pulse
 - c) Oliguria
 - d) Extreme thirst

Answer:

1. Assess degree of dehydration _____
2. Narrate type of fluid for initial rehydration _____
3. Type of fluid for maintenance of rehydration _____
4. Within how much time should the above-mentioned fluid be administered _____ hrs ?
5. Calculate amount of fluid for initial rehydration _____

12. Which age and sex are usually more vulnerable during cholera epidemics ?

- | | |
|-----------------|------------|
| a) 1. 0 - 4 yrs | b) 1. Male |
| 2. 10-14 " | 2. Female |
| 3. 15-39 " | 3. Both |
| 4. 40+ | |

13. Can plain water be given to diarrhoea patients, particularly to children ?

Yes _____ No _____

14. If a cholera patient dies within 2 hrs of admission the probable cause may be -

- 1) Toxaemia
- 2) Malnutrition
- 3) Perforation of intestine
- 4) Dehydration due to inadequate fluid replacement

15. Who should be trained to act as depot holders?

- (a)
- (b)
- (c)
- (d)
- (e)
- (f)
- (g)
- (h)

QUESTIONNAIRE FOR EVALUATION OF KNOWLEDGE, ATTITUDE AND PRACTICE OF FIELD
WORKERS ON DIARRHOEAL DISEASE EPIDEMIC CONTROL

It is not a personal judgment.
It will evaluate the training
course offered at ICDDR,B. All
information will be confidential.

Name of interviewer _____

Upa-zila _____

District _____

Date _____

1. Name _____
2. Designation _____
3. When did you receive your training by
MO and SI _____
4. Was the training course
 - a) Very useful
 - b) Useful
 - c) Improvement of knowledge and skill was not much.
5. Give at least 4 signs and/or symptoms of dehydration:
 - 1.
 - 2.
 - 3.
 - 4.
6. When would you start oral rehydration therapy if a child develops
diarrhoea:
 - a) Next day, b) Same day after 12 hrs., c) As early as possible.
7. When ORS cannot be given?
 - a) Infant with watery diarrhoea and history of fever.
 - b) Very dry tongue and irregular pulse.
 - c) Unconscious.
 - d) Convulsion.
 - e) Mild vomiting.

There may be more than one
correct answer to one
question. Place tick
mark(s).

8. What should be the dietary practice during acute diarrhoea?

- 1) No food to the patient
- 2) Soft rice
- 3) 'Chira'
- 4) Banana
- 5) Green coconut water
- 6) Breast milk
- 7) Plain water

9. A suspected case of cholera is defined by (put ✓ marks).

Fever _____

Acute onset _____

Rice watery stool _____

Bloody mucoid stool _____

Effortless purging _____

Abdominal cramp _____

Occurrence of diarrhoea in the same family or
neighbourhood _____

Tenesmus _____

Prolonged onset _____

Rapid dehydration _____

10. How diarrhoea epidemic can be detected ?

- a) Rumour
- b) Information from local pharmacy
- c) Occurrence of diarrhoeal death with short onset-death interval
- d) Occurrence of cases more than normally expected.

11. In diarrhoea epidemic what is the priority approach ?

- a) Health education
- b) Vaccination
- c) Early case management
- d) Reporting to Health Complex
- e) Establishment of a temporary treatment centre.

12. What is the best solution for I.V. rehydration therapy ?

- 1) Normal saline _____
- 2) Cholera saline _____
- 3) 5% dextrose in aqua _____

13. Please write down the formula of home-made solution.

14. Best place to begin rehydration therapy is at:

- 1) Health complex by I.V.F.
- 2) Pharmacy by ORS
- 3) Household by ORS/home-made solution.

CHECKLIST

Name of interviewer _____
 Upa-zila _____
 District _____
 Date _____

For Health and Family Planning Officers:

1. When did your MO and SI of the health complex receive the training at ICDDR, B _____
2. When was the training session conducted at the health complex _____
3. Total field staffs the health complex had on the date of training _____
4. Total field staffs attending the training session _____
 (HI, AHI, GHA, FWW, FPA and FWA)
5. Total ORS packets available (on the date of visit) _____ at the health complex.
6. Total available I.V.F. (on the date of visit) _____ / _____ bags
 in the health complex. 500 cc 1000 cc
7. During last diarrhoeal epidemic what were the problems you had faced to combat the epidemic _____

8. If buffer stock is not maintained properly, what are the reasons (specify) _____

For Medical Officers/Sanitary Inspectors:

1. During last diarrhoeal epidemic, what were the problems you had faced to combat the epidemic ? _____

Sub-centre:

Name _____ (interviewee)

Designation _____

1. Stock position of ORS in the sub-centre (on the date of visit) _____ pkts.
2. Stock position of I.V.F. in the nearest sub-centre (on the date of visit) _____ / _____ bags.
500 cc 1000 cc
3. During last diarrhoeal epidemic what were the problems you had faced to combat the epidemic ? _____

4. If buffer stock is not maintained properly, what are the reasons (specify) _____

